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RESEARCH IN MEDICINE ON THE PACIFIC COAST DURING 1927-1928*

By K. F. MEYER, Ph.D.
San Francisco

IT is generally admitted that medicine of today is so little affected by great discoveries of individual men that the historian of the twenty-first century may be at a loss to pick the greatest names from the many great ones. The art of healing is becoming the art of great masses of highly trained men. A review of the progress in medicine on the Pacific Coast is therefore an account of the achievements of the men who for the past ten or fifteen years have developed centers and schools of research. Although there are unquestionably definite tendencies in the nature of the problems under consideration by the various groups, it is evident that the West emancipates itself from the East not only in the selection of the investigative programs, but also in the skillful and frequently brilliant execution of experimental studies. In the light of the universal recognition accorded to the investigations of the Pacific Coast workers it is naturally a debatable question whether or not it is a wise procedure to herald especially the endeavors of those who might prefer to contribute to the progress of science with the least amount of notoriety and clamor. Aside from this feeling of uncertainty it must always be appreciated that in the allotted time it will be impossible to do justice to all of their research activities. This brief review obviously must be a limited and possibly a one-sided account of the achievements of a few groups of workers which, however, may serve as an inspiration to those who guide the destinies of civilization on the Coast.

For the sake of an orderly presentation the achievements may be conveniently discussed under the following group headings:

1. Research into the nature of the parasitic causes of disease.
2. Research into the nature of the causes of other than infectious diseases.
3. Fundamental investigations dealing with biological phenomena.
4. Research in the treatment of disease.

I. RESEARCH INTO THE NATURE OF THE PARASITIC CAUSES OF DISEASE

Leprosy.—Probably the most important contribution in this field has been made by Professor

Ernest L. Walker of the George Williams Hooper Foundation for Medical Research, University of California, through his bacteriological studies of leprosy extending over a number of years and continued in Hawaii during the past year. The various types of coccoid, diphtheroid and actinomycoid organisms that have been repeatedly cultivated from leprosy lesions by numerous investigators are all stages in the life cycle of one pleomorphic and facultative acid-fast organism which is a member of the genus *Actinomyces* as now constituted. Hansen's acid-fast bacterium of leprosy lesions is just one stage in the life cycle of this actinomyces. Like other thread-like forms, the lepra actinomyces is a soil organism of wide but irregular distribution. It is therefore probable that leprosy is primarily a soil infection of wounds, but this does not exclude the possibility that the disease may sometimes be transmitted by direct or indirect contact.

Tuberculosis.—In the related field of tuberculosis Dr. Frederick Eberson, department of medicine, University of California, has continued his studies on the products of the growth of the tubercle bacillus on synthetic mediums. He has been able to isolate various fractions, some of which are thermolabile and of which others are thermostable. One of these fractions present in the Berkefeld filtrates possesses antigenic properties and behaves in many respects like a toxin. The same worker has noted that guinea-pigs treated with the toxin-like filtrate acquire a state of allergy and a specific resistance to tubercle infection. Animals injected with inactivated (heated) toxin filtrates behaved like untreated controls. The experiments of Professors C. M. Haring, J. Traum, F. M. Hayes, assisted by Mr. B. S. Henri, at the California Agricultural Experiment Station have confirmed the observation of Calmette that calves vaccinated with a strain of tubercle bacilli attenuated by cultivation on bile potato (the so-called B. C. G. vaccine = bilité Calmette-Guérin vaccine) are resistant to an intravenous injection of two milligrams of virulent tubercle bacilli. However, the protective value of the vaccination against infection by feeding milk containing tubercle bacilli has not as yet been demonstrated. The outcome of these tests will be awaited with a great deal of interest since they may help to decide the following important questions: Is the B. C. G. vaccine harmless? Does it immunize against an invasion of the tubercle bacilli by the natural portals of entry of the diges-

* From the George Williams Hooper Foundation for Medical Research, University of California Medical School, San Francisco.

* Read in part before the Pacific Division, American Association for the Advancement of Science at Pomona College, June 13, 1928.

tive or respiratory tract, and should it be used in the protection of infants of tuberculous parents?

By growing tubercle bacilli on media which diminished the fat and wax of the bacillus to a minimum Professor John Weinzirl of the department of bacteriology and pathology, University of Washington, was able to show that the normal bacilli and those without fat show no difference in resistance to chemical and physical agents. Apparently the assumption that the fat protects the organisms against external agents is an error.

Undulant or Malta Fever.—Undulant or Malta fever has attracted the attention of a number of workers (Dr. E. C. Dickson, Stanford University Medical School and Dr. John Ruddock, Los Angeles) since in a number of instances specific agglutinins against the bacillus of infectious abortion of cattle, *Brucella abortus*, has been demonstrated in the blood serum of patients. The old question—is the abortion bacillus or some related species pathogenic for man, and is it conveyed to human beings through raw milk—is only partially answered. Feeding experiments on monkeys by Miss B. Eddie and myself have shown that, contrary to former observations, a single feeding of several million abortion bacilli of animal and human origin regularly infect these animals. Although typical temperature reactions may be absent and blood cultures may be rarely obtained, the serum invariably contains agglutinins on the tenth to the fifteenth day after the feeding and the ingested bacilli remain latent for weeks in the spleen, bone marrow, and lymph nodes. It appears that young apes are less susceptible than older animals. Epidemiologic studies have shown that the raw milk of the dairies, which are suspected of being responsible for the human cases of undulant fever, is very heavily infected with abortion bacilli.

Tetanus.—A new type of tetanus bacillus (Type IX) found by Mr. George E. Coleman and Miss J. Gunnison in garden soil, a new type of *Cl. botulinum* (Type D) as well as a dysentery bacillus hitherto unknown in California, have been studied by members of the Hooper Foundation staff.

In contrast with all usual experimental procedures, by employing formaldehyd as a tissue debilitant, Mr. George E. Coleman has regularly infected guinea-pigs with intramuscular injections of an exceedingly small number of detoxified spores of *Cl. tetani* and *Cl. botulinum*. This dependable technique is well suited to evaluate the curative and protective properties of certain polyvalent antitoxic and antibacterial sera which have recently been prepared against these anaerobic bacteria.

Protozoan Parasites.—In parasitology Professor C. A. Kofoid of the department of zoölogy, University of California, describes a new ameba, *Councilmania dissimilis*, from human stools. This protozoa may be distinguished from *Entameba dysenteriae* by a large blob of chromatin, atypically dispersed karyosome, eight chromosomes, eight nucleated cysts and budding forms in the stools. According to Doctors H. C. Hinshaw and

F. V. Simonton of the Stomatological Research group the incidence of *Endameba gingivalis* infection in the buccal cavities of 357 individuals carefully examined was 46.34 per cent. The parasites do not occur in the strictly normal mouth. They are invariably found in typical inflammatory pyorrhea alveolaris, and they are much more frequently encountered in persons belonging to older age groups. Although the etiological relationship of these protozoa to parodontoclasia is by no means clear it is noteworthy that Professor C. A. Kofoid and Doctor Hinshaw have demonstrated the distribution of the *Entameba* in the pyorrheal pocket. A peculiar biological association of *Leptotrichia*, calculus and ameba produces a very interesting picture. The *Leptotrichia* are directly concerned with the deposition of calcium salts. In the masses of the projecting filaments the conditions favorable for shelter, food supply, and reaction encourage the multiplication of the ameba, while in turn the inflammatory process in the interdental papillae supplies the nuclear detritus which may be required by the protozoa and may also contribute to the phosphatic material of the calculus. Doctor Hinshaw has also successfully infected dogs with *Endameba gingivalis* and *Trichomonas buccalis* of the human mouth. The infection persisted for four months, and was only successful when inflammatory and gingival pocket formation existed prior to the beginning of the experiment.

Quantitative examinations of the mouth flora under different dietary conditions by Miss B. F. Howitt of the Hooper Foundation and Dr. W. C. Fleming of the Stomatological Research group have shown that the oral bacteria are more influenced by the local food remains than by any general systemic effect produced by dietary changes. Artificial cleaning with the toothbrush is many times more effective in reducing the absolute number of mouth organisms than is the supposed cleansing accomplished through a diet composed presumably of detergent elements.

Bacterial Toxin Production.—The mechanism of toxin production of certain bacteria and the chemical nature of the poisons are still unknown although Dr. Claus W. Jungeblut of the department of bacteriology and experimental pathology, Stanford University, has confirmed previous observations that toxic and virulent strains of *B. diphtheriae* may be dissociated into atoxic varieties by means of cultivation in a medium containing specific antitoxin. However, these altered strains retained their virulence for guinea-pigs. Furthermore the atoxic filtrates gave definite flocculation with diphtheria antitoxic sera according to the method of Ramon. Miss E. Lewis of the department of bacteriology, University of California, has made similar observations on the toxin and antitoxin mixtures of *Cl. botulinum*. These various results cast considerable doubt on the specific nature of the flocculations which occur in neutral mixtures of bacterial toxins with their respective antitoxins. Some progress has been made in the purification of the botulinus toxin. Dr. H. Sommer and his associates at the Hooper

Foundation have secured highly potent dry toxins by adjusting a toxic filtrate to a P_H of 4.4 and by dialyzing the precipitate. Such toxins are remarkably stable and their pharmacologic properties, contrary to the views of Bronfenbrenner are not intensified by acidification. Furthermore the potency of the poison according to Mrs. Wagner-Sommer can be enhanced by a brief incubation with protein solutions previous to the subcutaneous inoculation.

A new principle, a nonspecific systemic adsorption for a rational chemotherapy of bacterial intoxications, has been developed by Dr. P. J. Hanzlik, professor of pharmacology, and Dr. E. M. Bilt, assistant in pharmacology, Stanford University School of Medicine. The protective action of twenty-three dyes and drugs was tested in mixtures with botulinus, diphtheria and tetanus toxins injected locally, and also by injection of the dyes intravenously and the toxins intramuscularly. Of all the agents tried Congo red was most efficient. Intravenous injection of the dye protected the majority (about 80 per cent) of the animals poisoned with diphtheria and botulinus toxins, but not those poisoned with tetanus. Congo red protects also against poisoning from a variety of drugs (curare, strychnin, guanidin, oxalates, morphin). Since a physical binding of the curare occurs in curare-congo mixtures it is suspected that the same is the case with the toxins. In fact all the evidence indicates that the mechanism of the protection is mediated through the physical properties of the dyes, *i. e.*, through surface activity in which adsorption is the dominant factor.

Bacteriophage Phenomena.—Professor E. W. Schultz has diligently pursued his investigations on the bacteriophage phenomena. Contrary to the general belief that bacteriophages active against intestinal organisms exhibit a high degree of resistance to the action of trypsin, he found two races of staphylococcus lysin rendered inactive by this ferment within a period of about forty-eight hours. In collaboration with Mr. K. M. Taylor he secured a lytic filtrate from eight spontaneous tumors of white mice active against the dysentery bacillus. It is conceivable that the bacteriophage in these tumors originates from the intestinal content of the mice.

Local or Tissue Immunity.—Various factors are probably responsible for the many manifestations of local or tissue immunity which have been studied in recent years. Dr. H. L. Averill at the Hooper Foundation was able, contrary to previous knowledge, to protect guinea-pigs against a fatal infection with aertrycke bacilli through the skin, provided that twenty-four to forty-eight hours prior to the injection of the virulent organism the skin had been treated with "antivirus." The same principle, according to Mr. L. Hertert, Hooper Foundation, does not afford immunity against a hemolytic skin-invasive streptococcus of guinea-pig origin. However, the Besredka method of local treatment with specific dressings, in the light of encouraging clinical results reported by Dr. H. L. Averill, deserves more extensive investiga-

tions. Dr. Rachel E. Hoffstadt, department of bacteriology and pathology, University of Washington, has vaccinated groups of students by mouth. Triple typhoid vaccine in gelatin capsules containing an alcoholic extract of bile in a starch matrix were administered orally before breakfast. Since agglutinins and other antibodies appeared in the blood it is evident that a general immunity response and not a local tissue resistance was induced by the oral vaccination. A local mechanism of defense in the uterus during the puerperium is suggested from experiments of Dr. C. F. Fluhmann, division of obstetrics and gynecology, Stanford University School of Medicine. During pregnancy the reticulo-endothelial cells tremendously increase both in number and in activity in the pars uterinae, the cornu and the tubes of rabbits. This behavior of the cells persists for several weeks during the puerperium.

2. RESEARCH INTO THE NATURE OF THE CAUSES OF OTHER THAN INFECTIOUS DISEASES

In this group will be considered a variety of studies on dietary deficiencies, the function of endocrines, heredity and general physiology.

Antisterility Vitamin Fat-Soluble E and Other Vitamins.—First in importance are the researches of Professor H. M. Evans, Dr. George O. Burr, and their associates in the department of anatomy, University of California. Their extensive studies on the antisterility vitamin fat-soluble E have been summarized in a valuable monograph. More recently during the same investigation it was found that the curative effect of the fertility vitamin E, present in wheat germ, is counteracted by certain substances in fats and oils. Furthermore they have observed that highly purified and almost fat-free diets which give subnormal growth and ovulation, except when supplemented with small amounts of beef liver, lettuce or lard, can also be adequately supplemented by other fats, in particular by cocoanut oil, corn oil or butter. It is not unlikely that the favorable substance, since it can be recognized only in the fatty acid portion after saponification of the fats, is a new vitamin (F).

Diets and Growth.—In another series of experiments the same workers have noted that a "pure" diet of casein (Van Slyke), sucrose and salts is not adequate for normal growth even when supplemented by very high levels of vitamins A, B, C, D and E. Lactation fails with the pure diet. The inclusion of lettuce or lard in the diet allows the females to produce good litters and they successfully wean them, but the second generation is always retarded in growth. These observations suggest that the "pure" diet requires either an extraordinary amount of some of the known vitamins or an unknown member (F or H) of the vitamin class.

Lactation and Vitamins.—That successful lactation demands more growth-promoting vitamin B than normal growth of the mother has been stressed by pediatricists and experimenters on dietary deficiencies. According to Professor C. U.

Moore and his associates at the Collin's Nutritional Research Laboratory, University of Oregon Medical School, additional proof has been furnished that young rats nursed by mothers on a minimum vitamin B diet show a high mortality from polyneuritis and visceral and cerebral hemorrhages. By increasing the yeast in the diet from 2 to 7 per cent the mortality may be decreased from 72.9 to 9.3 per cent. Similar experiments of Professor Evans and Doctor Burr clearly indicate that the additional yeast is needed for lactation solely because of its contribution of anti-neuritic vitamin B and not because of the growth-promoting vitamin B of the diet. The following observation confirms this. When tikitiki (a dilute alcoholic extract of white rice polishings made by the Philippine Bureau of Science), which is almost lacking in growth-promoting vitamin B, is given to lactating mothers without increased yeast dosage normal lactation can also be produced. Clinical observations by Dr. C. U. Moore of Portland leave no doubt that the laboratory findings have a direct bearing on the problem of the nutritional requirements of lactating women, who on the average American dietary produce a milk that is exceedingly low in vitamin B. Equally important are the experiments of the same worker, who was able to show that puppies were stunted and prematurely died when vegetable fats were substituted for butter in the diet. An excess of alkali in the diet, regardless of its calcium-phosphorus ratio may, according to Doctors M. R. Jones and F. V. Simonton of the Stomatological Research group, initiate retrograde skeletal and dental defects comparable to those seen in man. The alveolar process appears to be more susceptible to slight dietary errors than do the long bones. In fact, diets which are potentially basic in reaction and low in calcium, protein and vitamins produce in adult dogs lesions similar to those of a noninflammatory type of parodontoclasia which may be cured by feeding hydrochloric acid and cod-liver oil, in conjunction with roentgen rays. The studies of Mr. Ohman Horace Cady of the department of chemistry, Stanford University, suggest that vitamin A is withdrawn from the blood as rapidly as absorbed from the alimentary canal of dogs. The concentration of this vitamin in the blood of dogs is normally very low, and it undergoes no measurable increase during the absorption of large amounts from the digestive tract.

Avitaminoses.—The general organ and tissue injuries which develop in the course of certain avitaminoses deserve a more careful study than has hitherto been made. It is therefore most gratifying to note that a number of workers have addressed themselves to this difficult and not always appreciated task. Professor A. W. Meyer and Mr. L. M. McCormick of the department of anatomy at Stanford have made a careful gross and microscopic study of the tissue changes in experimental scurvy of guinea-pigs. An almost universal afebrile, lytic process induces frequently hemorrhages because of the destruction of the walls of the blood vessels, necroses, degenera-

tions in the parenchymatous organs, anemia and changes in the skeletal system, etc. The changes in the gums and teeth produced in rats on deficient diets have been analyzed by Dr. J. A. Marshall of the College of Dentistry, University of California. Dr. K. S. Bishop of the Hooper Foundation, working under the auspices of the John C. and Edward Coleman Fund, noted marked abnormalities of the skull bones and bones of the ear capsule, including the stapes and other ossicles, produced by two ricket diets. However, this is a completely generalized abnormality in both instances, and these diets do not cause localized areas of distorted tissue. Furthermore, the ligament of the foot plate of the stapes and the articulating cartilage cells remain unaffected.

Paralysis and Deficient Vitamins.—An upper motor neurone paralysis induced in rats by vitamin-E deficient diets is the subject of a careful inquiry by Professor H. M. Evans, Doctors Burr and R. W. Harvey of the department of anatomy, University of California. Finally, vitamin A injures the female reproductive system of the rat so that fertilization and implantation fail (Professor Evans) or spontaneous deciduomatous tumors develop in the uterine horns of rats kept on diets low in vitamin A (Doctor Bishop) or E (Professor Evans and also Doctor Bishop and Professor Agnes F. Morgan).

Diabetes.—A year ago Bergey of Philadelphia announced that diabetes mellitus could be produced in rabbits by a single intravenous injection of a sterile Berkefeld filtrate of the urine of diabetic patients. Professor E. W. Schultz and Messrs. S. J. Johnson and G. T. Akaimatsau of the department of bacteriology and experimental pathology, Stanford University, in carefully controlled experiments were unable to confirm these observations.

Mussel Poisoning.—A catastrophic and extensive outbreak of mussel poisoning, which occurred in July, 1927, in the vicinity of San Francisco, prompted Dr. H. Sommer, Miss P. Schoenholz and myself to make an inquiry into the nature and the origin of the poison. It was found that fresh *Mytilus californianus* collected on the coast contain a highly potent nerve poison, probably a quarterly or tertiary amin, which is readily extracted with alcohol or acidified distilled water. The poisonous properties have disappeared during the winter months, but have again appeared in certain mussel beds as far north as Eureka. A metabolism disease of the mollusks intimately associated with the spawning functions is suspected.

Rattlesnake Venom.—Special methods of collecting rattlesnake venom for the preparation of a potent antivenin have been developed by Dr. L. M. Klauber of the Zoological Society of San Diego.

Pituitary Gland.—During the past ten years the mystery surrounding the physiology of the pituitary gland has been gradually unveiled by workers on the Pacific Coast. That the anterior hypophysis is indispensable for growth and that an increased amount of the hormone of this organ

is the direct cause of overgrowth, is now fully established. It is equally certain that a lessened amount is the cause of various endocrine dys-trophies. Professors Philip E. Smith and Earl T. Engle of the department of anatomy, Stanford University, working on hypophysectomized rats, were able to overcome the disabilities produced by the removal of the pituitary by fresh daily homo- and heterotransplants of the hypophysis. Professor F. L. Reichert of the department of surgery, Stanford University Medical School, has obtained similar results by this replacement therapy, using rabbits' hypophyses on a puppy whose pituitary was removed when six weeks old.

Hypophysis and Sex Gland Function.—The relationship of the hypophysis to the normal function of the sex glands is evidenced by several recent studies. Professors Philip E. Smith and Earl T. Engle have observed that the administration of a gonad-stimulating substance, probably a hormone, from the anterior hypophysis liberates in rats, mice and guinea-pigs a large number of ova. These eggs may be fertilized and as many as twenty-nine embryos may develop in a single pregnancy within a month. According to Professor Engle the same hormone is the regulatory factor in compensatory ovarian hypertrophy, thus an increased amount causes ovarian grafts to develop mature and cystic follicles, even when transplanted into the testis of an adult male. According to Dr. G. Van Wagenen of the department of anatomy, University of California, the hypophyseal extract raises the body length and the weight of castrated male rats above that of the controls. Large placentomata may develop if, according to Dr. L. Brouha of the same department, rats are injected daily with hypophyseal fluid and if the uterine mucosa is injured around the fifth day of injection and the animal killed five to seven days after operation.

Hereditary Transmission.—Constitutional or hereditary factors unquestionably play an important rôle in the etiology of certain diseases. For a number of years Professor C. H. Danforth of the department of anatomy, Stanford University, has followed in laboratory animals the hereditary transmission of such conditions as adiposity, anemia, the doubling and reduction of parts in the mouse, and the abnormal persistence of caudal endoderm. More recently he has, in collaboration with Mr. Francis Foster, studied the agents regulating plumage production and the relation of certain genetic and endocrine factors to somatic manifestations in the fowl. Through skin grafting a convenient method has been found of analyzing some of the factors involved in feather production and in growth changes in the developing skin. The experiments indicate that several similar, if not identical, feather characters can be produced either by breeding or by therapy. Dr. E. S. Sundstroem of the department of biochemistry, University of California, has concluded experiments of several years' duration on the effects of climatic environment, with special reference to temperature and humidity upon the growth and metabolic activities of the rat. The work was

undertaken to check in a more precise way his previous reported work on the effects of tropical climate on the behavior of man.

Cholesterol.—In an experimental study Professors F. E. Blaisdell and Dr. L. R. Chandler of the Laboratory of Surgical Research, Stanford University Medical School, have found that a continued hypercholesteremia in the rabbit and dog results in deposits of cholesterol containing fat in the mucosa and submucosa of the gall bladder provided the cystic duct is patent. Since the deposits of cholesterol in the wall of the gall bladder are dependent upon the absorption of this substance from the bile no cholesterol-containing fat was found when the cystic duct was ligated.

Hemochromatosis.—Hemochromatosis, a disease in which an extraordinary deposition of iron containing pigment together with other pigments is found in practically all organs including the skin, remained until recently an unsolved problem. Professor E. M. Hall and Mr. E. M. Butt of the department of pathology, Stanford University Medical School, in confirming the work of Mallory, have produced in the liver a condition in many respects similar to that observed in human hemochromatosis by poisoning rabbits with copper. Observations of Doctors T. L. Althausen and William J. Kerr of the department of medicine, University of California Medical School, suggest that this disturbance of the pigment metabolism may be restored to normal with insulin.

Cancer Study.—The organization of a cancer division at the Pasadena Hospital under the direction of the well-known investigator, Dr. Montrose T. Burrows, formerly of the Barnard Free Skin and Cancer Hospital, St. Louis, promises great developments in research into the causes and treatment of malignant tumors. Cancer which is not a disease of itself is probably only one type of change which the body suffers in the abnormal aging of its parts. Doctor Burrows has shown that it can be induced by producing hyperfunction of any organ. Furthermore, experimental studies dealing with the relationship between infection and cancer have shown that cancer stands at one end of the scale and infection at the other.

3. FUNDAMENTAL INVESTIGATIONS DEALING WITH BIOLOGICAL PHENOMENA

Without a thorough knowledge of the mechanisms of biological phenomena the many problems in medicine cannot be solved. It is therefore not surprising that the medical institutions of today participate more and more in the elucidation of general physiological and biochemical phenomena as observed in the animal kingdom. It is this group of studies which deserves some consideration.

Allergy.—Hypersensitiveness or allergy offers many fascinating problems. Professor W. H. Manwaring and his associates, Messrs. J. L. Azevedo and H. C. Torbert of the department of bacteriology and experimental pathology, Stanford University, report on experiments with Maignon's fraction of anaphylactic blood. They were able to confirm the findings of this investigator that the acquired hypersensitiveness in dogs

may be transmitted by the proteose-peptone-amino-acid fraction of anaphylactic blood. However, the symptomatology and autopsy findings are not those of typical anaphylaxis. Maignon's product when used by special experimental methods probably induces not a true passive anaphylaxis but some atypical phenomenon of hypersensitiveness. Professor Manwaring has also observed that horse proteins injected intravenously into normal dogs are so completely denatured by the end of four days as to lose their original antigenic properties. Contrary to expectations from current immunological theory, the denaturation is slower in immune dogs, rarely being complete before the sixth day.

Anaphylactic Shock.—Messrs. F. R. Van de Carr and O. B. Williams of the department of bacteriology, University of California, have extended their previous observations on the influence of heparin on the anaphylactic shock in the guinea-pig. Again, it was found that when heparin is injected into the circulation in an amount sufficient to prevent during twenty-four to forty-eight hours or longer the formation of a blood-clot, the anaphylactic syndrome, determined by very sensitive methods, was prevented in 60 per cent of the sensitized guinea-pigs if the dose was injected previous to the application of the shocking dose. Furthermore, the inhibitive action of heparin can be removed if the colloidal balance of the blood has been disturbed by a previous injection of heterophile antigens or 2 per cent sodium citrate solution. This observation suggests that in the guinea-pig the cause of the anaphylactic symptoms is probably governed by physicochemical disturbances in the colloidal balance of the blood leading to a coarser dispersion. The same explanation may apply to the experiments of Professor Claus W. Jungeblut of the department of bacteriology and experimental pathology, Stanford University, which showed that the intravenous injection of 0.02 gram of nearsphenamin into actively and passively sensitized guinea-pigs, if given fifteen to twenty minutes before the reintroduction of the specific antigen, was capable of saving approximately 50 per cent of the animals from fatal anaphylactic shock.

Tuberculin Reaction.—According to Messrs. F. R. Van de Carr and William R. Lyons of the departments of bacteriology and anatomy, University of California, "Tutocain," a trade name for the hydrochlorid of p-amino-benzoyl-di-methyl-amino-methyl-butanol, protects tuberculous guinea-pigs against a fatal dose of tuberculin, provided the local anesthetic is injected at least thirty minutes prior to the application of the tuberculin. It is not unlikely that the local edema favors a gradual but progressive desensitization and thus protects the animals from a fatal reaction. Intimately related to these phenomena are the studies by Dr. S. H. Hurwitz of the department of medicine, Stanford University, and Miss P. Schoenholz of the Hooper Foundation on the mechanism of passive transfer of human hypersensitiveness, bacterial allergy and the mechanism of skin tests in hay fever and asthma as well as

those by Doctors Robert W. Lamson and Gordon Alles of the Allergy Clinic of Dr. George Piness at Los Angeles on the specificity of the intracutaneous pollen test in man.

Compensatory Hypertrophy.—For a number of years Doctors T. Addis, L. L. and E. M. Mackay of the department of medicine, Stanford University Medical School, have made a study of the factors involved in the process of "compensatory hypertrophy." In the albino rat, after the removal of one lung the remaining lung showed an average increase of more than 40 per cent, while the removal of one adrenal gland is followed by hypertrophy of the cortex of the remaining gland. Preliminary to a systematic investigation of the well-known hypertrophy of the remaining kidney following unilateral nephrectomy by new methods the same workers have collected important observations on the influence of such factors as age, sex, food variations (protein, sodium, phosphate), etc., on the kidney weight. In the course of these studies the important fact has been established that in the rat the kidney weight-body surface ratio is constant at all ages while the kidney weight-body weight and the kidney weight-body length ratios vary at different ages. Furthermore, sex, like age, determines the renal weight; the female rat has less renal tissue per unit of body size than the male rat.

Recovery Oxidation After Muscular Exercise—Pregnancy Demands.—Contrary to the hypothesis of A. V. Hill, Professor E. G. Martin and Doctors Field and Hall of the department of physiology, Stanford University, have found that the recovery oxidation following muscular exercise cannot be attributed to a specific dynamic action of the increased blood lactates. Some other explanation for the recovery phenomenon must be sought, since high concentrations of blood lactates induced by physiological means were either not attended by any increase in oxygen consumption or the increase was slighter and less persistent than in typical examples of recovery oxidation in which blood-lactate concentration was no greater. Professor J. R. Slonaker of the department of physiology, Stanford University, reports that rats, virgin throughout life, show much more voluntary activity than rats bearing young, even though the latter were relieved of caring for and nursing the young after birth. Breeding rats consume more food than virgins, thus showing that the energy requirements of periods of childbearing exceed those of equivalent periods of voluntary bodily activity.

Sympathetic Function in the Esophagus.—The dual origin, from the superior cervical and thoracic ganglia, of the sympathetic function in the esophagus of pigeons has been studied for the first time by Professor P. J. Hanzlik and Dr. E. M. Butt of the department of pharmacology in the Stanford University Medical School. Striking and interesting responses to many drugs have been noted; for example, the contracted esophageal muscle can be relaxed or reversed by drugs and conditions physically and chemically different and which of themselves cause contraction. How-

ever, the same drug or stimulus cannot oppose its own action. For the relief of esophageal spasms epinephrin is therapeutically indicated.

Spinal Cord Pathways—Eye Innervation.—A number of other reports on neurological studies should be mentioned, but they cannot be briefly summarized. Professor W. F. Allen, department of anatomy, University of Oregon Medical School, has located in the spinal cord the pathways by which are conducted impulses from the cerebrum and superior colliculus and which affect respiration. Professor O. Larsell of the same department analyzed the innervation of the pleura pulmonalis; Messrs. O. L. Huddleston and H. E. de Feo of the department of physiology, University of California, investigated the reciprocal innervation of antagonistic eye muscles of dogfish; and Professor F. W. Weymouth explored the foveal region of the retina in respect to visual acuity in order to throw light on the mechanism of control of eye movements.

Biochemical Studies—Amino-Acids; Calcium Fractions; Calcium Phosphorus Magnesium.—Biochemical studies by Professor J. M. Luck of the department of chemistry, Stanford University, with the aid of a new method indicates that the oral administration of amino-acids to rats causes increases of varying magnitude in the amino-acid content of the liver, but no appreciable change, except in the case of glycine, in the amino-acid content of the muscle. Furthermore, since the administration of insulin to normal animals induces a lowering in the amino-acid content of the blood, liver, etc., it is suspected that insulin hypoglycemia induces a compensatory increase in the rate of glucogenesis from amino-acids. Professor C. L. A. Schmidt and his associates, Drs. D. M. Greenberg and Kirk of the department of biochemistry, University of California, have shown that sodium and barium salts of certain amino-acids behave as strong electrolytes. This is also true for sodium caseinate. Barium caseinate, on the contrary, is abnormal in its behavior, indicating therefore the presence in such solutions of complex ions. The same workers have determined the dissociation constants of serine, valine, isoleucine, and oxyproline. According to Dr. D. M. Greenberg and Mr. H. E. Ballard of the same department the diffusible and nondiffusible calcium fractions in various pathological sera may vary, but the spinal fluid calcium remains constant. This seemingly indicates that spinal fluid calcium does not represent a true diffuse. Professor Schmidt and Mr. H. Goss are studying the calcium, phosphorus and magnesium metabolism in rats during the period of pregnancy and lactation. A storage of calcium begins immediately after the onset of pregnancy and in amounts which indicate that adequate provision is not only made for the fetus, but also in anticipation of the period of lactation at which time there is a very heavy demand upon the body for calcium and phosphorus.

Oxidation-Reduction Potentials.—Professor J. P. Baumberger of the department of physiology at Stanford University has developed an

electrometric method which promises to be of importance as an aid in determining the oxidation-reduction potentials of the irreversible reactions by which energy is liberated in living tissues.

Insulin Substitutes.—Synthalin and glukorment, substitutes for insulin recommended by European workers, are, according to Doctors N. R. Blatherwick and F. Bischoff of the Santa Barbara Cottage Hospital, useless in the treatment of diabetes. The lowering of the blood sugar and the sugar in the urine, incident to taking these drugs, is probably due to liver damage which prevents the change of protein into sugar rather than the burning of sugar itself.

4. RESEARCH IN THE TREATMENT OF DISEASE

Observation and experiment in the treatment of disease form a great and essential part in medical research. Only a few of the achievements can be mentioned.

Buccal Infections.—A troublesome infection of the buccal cavity transmitted by dust and occasionally occurring in epidemic form among newborn infants, according to Dr. Harold K. Faber and Dr. E. B. Clark of the department of pediatrics, Stanford University School of Medicine, can be effectively cured by an application of gentian violet.

Bismuth and Syphilis.—In search for effective antisyphilitic remedies, Doctors H. G. Mehrtens and P. J. Hanzlik, professor of medicine and pharmacology respectively, and Messrs. D. C. Marshall and N. S. Brown have adopted a program of clinical and experimental studies with bismuth and its compounds. Regardless of the preparation used, bismuth injected intramuscularly in man is absorbed and a portion excreted through the kidneys, but a considerable amount which is stored in the body can be mobilized in the blood stream by hot baths and vaccines. No evidences of toxicity from metallic bismuth have been encountered among one hundred individuals receiving a total of 1500 injections irrespective of the considerable amount of bismuth which may be stored in the body.

Balantidium Coli Infections.—Spontaneous *Balantidium coli* infections of guinea-pigs may, according to Miss M. Sweeney of the Hooper Foundation, in a high percentage of instances be cured with tryparsamid and stovarsol. The latter preparation has also been successfully employed by Dr. H. E. Butka, associate professor of pathology, College of Medical Evangelists, Los Angeles, in the treatment of a group of medical students infested with protozoan parasites.

Cancer—Low Protein Diets—Liver Treatment—Subcutaneous Blood Transfusions.—Promising results in the treatment of cancer are reported by Doctors H. J. Ullmann, N. R. Blatherwick and F. Bischoff of the Santa Barbara Hospital with a colloidal lead phosphate of low toxicity. Dr. W. D. Sansum of the same institution has discovered that the elimination of fat from the diabetic diet and the use of high carbohydrate diets in the treatment of diabetes are just as

important as the use of insulin. According to Doctors F. R. Nuzum and Sansum the use of diets low in protein has in over one thousand cases resulted in a reduction of the abnormally high blood pressure and a marked improvement in all with the exception of a very few whose blood vessels and kidneys were damaged beyond repair. Professor A. L. Bloomfield of the department of medicine, Stanford University Medical School, has successfully treated cases of sprue with raw liver and with the Minot-Murphy liver extract, which is now generally employed in the cure of pernicious anemia. In this connection it is of interest to note that Doctors William J. Kerr and E. H. Falconer of the University of California Hospital have observed a patient with a very marked anemia, due to *Dibothriocephalus latus* to respond to the liver treatment. This is probably the first evidence of the action of the liver extract on this type of anemia. Since Professor O. Larsell and Doctors N. W. Jones, B. I. Phillips and H. T. Nokes of the University of Oregon Medical School have observed that injected nuclei of red blood cells and nucleic acid stimulate the blood-forming organs, they conclude that the nucleoprotein, and not a special hormone, is the active substance of the beef liver. Subcutaneous blood transfusions, according to Dr. C. M. Moore of the Collin's Nutritional Research Laboratory, University of Oregon Medical School, are just as effective as intravenous transfusion and, since the dangers of hemolysis and agglutination are eliminated, the method is safe and deserves more universal use.

Surgery in Tuberculous Abscesses.—In surgery Professor E. Holman, department of surgery, Stanford University Medical School, has demonstrated on dogs that by the use of an atraumatic technique of closing the bronchus, lung lobes containing tuberculous abscesses may be removed successfully.

Salicylates—Ephedrin Substitute.—Doctors C. C. Johnson and P. J. Hanzlik and Mr. M. A. Seidenfeld, department of pharmacology, Stanford University Medical School, have investigated the pharmacology of ammonium salicylate and synthetic salicyluric acid. The ammonium salicylate possesses more marked diuretic and metabolic effects with no greater toxicity than other salicylates. However, its fate in the body is different owing to the destruction of the ammonium ion. Salicyluric acid, a conjugation product of salicyl and glycoll, is relatively inert. Phenylethanolamin, a substitute for ephedrin, recently synthesized by Dr. Gordon Alles in the clinic of Dr. George Piness of Los Angeles, resembles in its action tyramin and ephedrin. According to Dr. W. L. Tainter, department of pharmacology, Stanford University Medical School, it is an effective drug in causing shrinkage of the turbinates and nasal mucosa. In the treatment of bronchial spasm it is less effective, but as a depressor agent it has more desirable qualities than epinephrin and ephedrin.

Morphin Substitute.—According to Dr. F. W. Lynch, department of gynecology and obstetrics,

"Allonal" = Allyl-isopropyl-barbituric acid-amino pyrin is an excellent substitute for morphin in postoperative therapy. This drug when given for a period of two or three days reduces the incidence of postoperative vomiting and almost entirely eliminates abdominal distention following operations.

Comment.—As already stated in the introduction this report is incomplete, but it gives an outline of the progress which has been made in research in medicine on the Pacific Coast during the year 1927-1928.

Hooper Foundation, University of California.

THE RADICULAR SYNDROME IN HYPERTROPHIC OSTEOARTHRITIS OF THE SPINE*

By LEWIS GUNTHER, M. D.†
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DISCUSSION by James F. Churchill, M.D., San Diego; Milton B. Lennon, M.D., San Francisco; Howard H. Markel, M.D., San Francisco; John Homer Woolsey, M.D., San Francisco.

SINCE von Bechterew's¹ original description of stiff spine associated with neurological symptoms and nerve root degeneration, much discussion has ensued regarding the classification of the various forms of spondylitis, and the neurological side of the syndrome has received inadequate attention.^{2,3} The finding of nerve root degeneration by Rhein⁴ in a case of *Spondylose rhizomelique* indicates that the neurological pathology is essentially alike in the various types of spondylitis and from the very nature of the process, nerve root symptoms should be present in the P. Marie and Strümpell, as well as in the Bechterew type. The experimental work of Nathan⁵ lends further weight to this view and indicates that the various forms of spondylitis are merely accidents of localization of a process which is generalized. Subjective and objective disturbances should be present in all types.

DEFINITION OF RADICULITIS

Dejerine⁶ described radiculitis as an acute inflammation of the spinal roots, manifested by alterations of sensation or of muscle function which show by their distribution that the primary disease process producing them is in the spinal root (Fig. 1) and not in the tracts and nuclei of the cord or in a peripheral nerve trunk. The neurological syndrome described by Bechterew received little consideration, however, until the work of Sicard⁷ on funiculitis and neurodocitis which associated osteoarthritis of the spine with the radicular syndrome. There are no criteria by which the neurodocitis or funiculitis of Sicard (extrameningeal involvement of the roots) can be distinguished from involvement of the intra-

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† Read in abstract before the semiannual meeting of the Pacific Interurban Clinical Club, December 16, 1927.

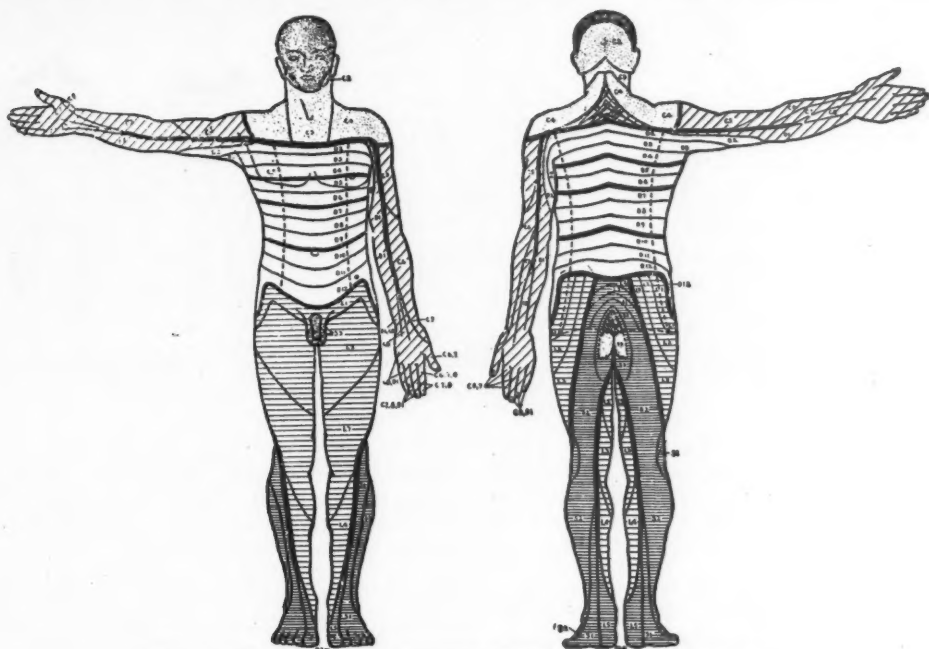


Fig. 1.—Radicular sensory innervation (from Mayer, J. A. M. A., 1913).

meningeal portion of the root⁸ since affection of either part will be manifested as a radicular disturbance (Fig. 1). The author, therefore, uses the term "radicular syndrome" to include the funiculitis and neurodocitis of Sicard.

A root type of altered sensation or motor power is not distinctive in itself as it occurs as a part of the picture in many diseases of the spine. That it occurs in osteoarthritis of the spine and is due to nerve root involvement either by meningeal reaction secondary to the osteoarthritic process, or to pressure in narrowed canals, has been recognized clinically and described by the French, and shown experimentally by Nathan.⁵ Even as late as 1922 Basso,⁹ professor of neurology at Rush Medical College, in discussing nerve syndromes and osteoarthritis of the spine as a cause of sciatica, lumbago, cervical, brachial and intercostal neuralgias, called attention to the appalling lack of objective observations. Rosenheck,¹⁰ in 1924, pointed out that radicular pains and spondylitis are related. He mentioned objective sensory changes but did not state their nature. Mayer¹¹ pointed out that there may be no sensory changes in the early stages of radiculitis, and, later, disturbances consist of alteration of light touch. Osteoarthritis of the spine is a common disease, indeed, and from the very nature of the process radicular manifestations should be present.^{8, 10} Sensory changes of a radicular nature to light touch should also be present.

CLINICAL HISTORY

In the medical out-patient department and wards of the University of California Hospital, studies were conducted on patients whose complaints suggested a root distribution. In the chief complaint the patient would outline the painful

area of a root to a degree which seemed uncanny in its topographical accuracy. When questioned, the past history would bring out other areas not complained of at the time, and these, too, the patient would outline accurately. The demonstration was just as consistent when one delved into the past history of so-called silent cases in which moderate to marked hypertrophic changes without subjective complaints were found by x-ray examination. Thus, in either event, a story of progression of involved areas over a number of years was formed and a record of subjective root areas obtained which, in many cases, was sufficiently accurate in itself to point the levels at which a pathological process would be anticipated in the spinal vertebrae.

PROCEDURE IN EXAMINATION

Sensory examinations were conducted on all patients with the cotton-tuft on a wooden applicator, and in a number of patients with the pin point, heat, cold and pinching. One or two areas would be selected at a given examination, usually the area of chief complaint. Other areas were left for examination at another time. This procedure was adopted because of the ease with which patients fatigue to examination of light touch. Several examinations were necessary if the entire available sensorium was to be examined.

Sensory changes were, for the most part, bilateral in distribution. Hyperesthesia, hypesthesia, or anesthesia to cotton-tuft were the most common findings. When hypesthesia to cotton-tuft was marked, changes to pin stroke were also found, moderate hypesthesia being the common change and, less frequently, anesthesia. Changes to heat and cold in a given case were in the same

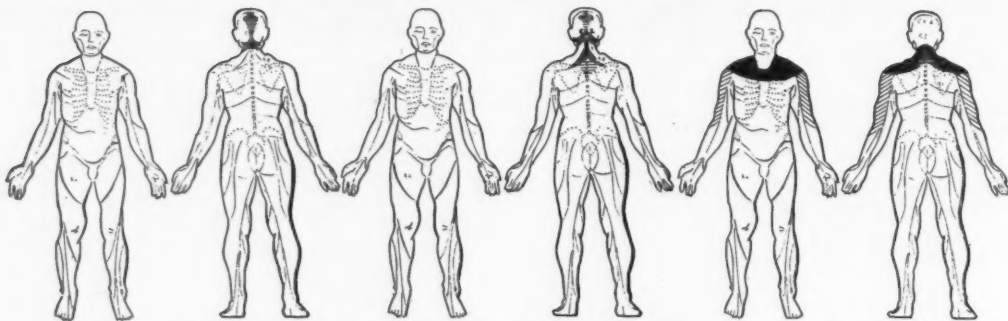


Fig. 2.—Radicular distribution, cervical 1, 2 and 3; occipital and vertex "headache."

Fig. 3.—Radicular distribution, cervical 1, 2 and 3; cervical 5 to 7; occipital and vertex "headache"; and back of the neck.

Fig. 4.—Radicular distribution, cervical 4, painful shoulders; cervical 5 to 7, back of the neck.

direction as those elicited with cotton-tuft or pin. Changes to thermal sensation could sometimes be demonstrated when the patient fatigued to cotton-tuft, or when the changes to the latter were not found or were so slight as to enter the element of uncertainty.

Hyperesthesia to cotton-tuft was the common finding in patients with complaints dating within one year. Occasionally a patient with symptoms of many years duration would suffer an acute attack in a given area, and these patients also showed hyperesthesia when the exacerbation was of less than one year's duration. In the areas supplied by the lower cervical roots and the lower lumbar and upper sacral roots, one found occasional hyperesthesia in patients with symptoms of more than five years duration. Hypesthesia to cotton-tuft was the common finding in patients whose symptoms extended beyond a five-year period and occasionally could be found in cases extending beyond three and four years. Marked hypesthesia to cotton-tuft, anesthesia to cotton-tuft, and hypesthesia to pin stroke were generally found in patients with symptoms of over five years duration and rarely in patients with symptoms of between three and five years duration. The *A* and *B* pinching tests of Carnett¹² were not used in a sufficient number of patients to warrant conclusions.

Sensory disturbance varied from a small area of hyperesthesia to a dulled sensorium to light touch over most of the body. Such alterations in light touch were found constantly and it became possible, after a number of examinations, to chart out the entire body and to anticipate the spinal vertebrae which would show pathological processes.

COMPLAINTS, IN ORDER OF FREQUENCY

In order of frequency the chief complaints consisted of pain, aching, soreness, stiffness, paresthesias (burning, numbness, tingling, heaviness, weight), dizziness, cramps and tenderness. Pain was described in various ways according to the language ability of the patient. Aching was of a dull character and the soreness was either heavy or light. The outstanding complaints were pain, aching, soreness and stiffness respectively. The regions complained of, according to frequency,

were an area immediately over the sacrum with radiation over the root distribution, commonly spoken of as sciatica (Fig. 10), or localized pain over the sacrum (backache) concomitant with pain on the inner side of the legs (Fig. 9); an area over the back of the neck (Fig. 3); side of the neck and shoulders (Fig. 4); over the occiput and vertex (Fig. 2); upper abdomen and epigastrium with radiation to the back (Fig. 6); lower abdomen with radiation to the back or from the back (Fig. 7); and the precordium with radiation to the left inner arm (Fig. 5). Symptoms referred to the roots which make up the great nerves of the lower and upper extremities were outstanding. Although the patient would complain of one side more than the other, bilateral involvement was quite a constant finding, the right side receiving more attention in the abdomen and the left side over the upper chest. Questioning would sometimes be necessary to bring out the bilateral nature of the symptoms.

CARDINAL SYMPTOMS

The cardinal symptoms were pain, aching and soreness induced or aggravated by movement of the spinal vertebrae, associated most commonly with sneezing, straining at stool and coughing (Dejerine's sign); rising after a sitting position; raising the head on awakening; getting out of bed; walking; sitting in one place for any length of time; change of position; and lifting. Pain at night which would awaken the patient was a striking feature and was relieved by change of position. Inability to sit up in bed from a supine position without producing pain and the necessity of rolling out on one side or the other were also characteristic. Many of the patients preferred a hard bed, obtaining most rest when lying flat on the back. The wearing of a corset or strapping, also heat and massage, gave relief.

It became apparent from the widespread nature of the complaints that involvement at various roots of the spine could cause subjective sensory disturbances which appeared to be due to visceral disease, and herein lies the importance of recogni-

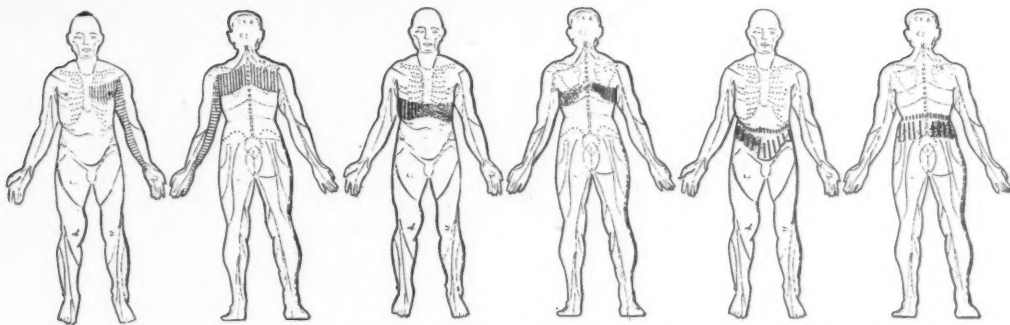


Fig. 5.—Radicular distribution, dorsal 2 to 5, "pseudo-angina pectoris."

Fig. 6.—Radicular distribution, dorsal 6 to 9; area of referred gall-bladder pain on the right; gastric disturbances and pancreatitis.

Fig. 7.—Radicular distribution, dorsal 10; belt-like pains as in tabes; dorsal 11, 12 on the right; area of referred pain from acute appendicitis, and on the left, area of referred pain from adnexal disease.

tion of the radicular syndrome which is based on osteoarthritis of the spinal vertebrae.

SYMPTOMS OF SECOND AND THIRD CERVICAL INVOLVEMENT

Headache (Fig. 2), described as a dull ache, soreness and burning at the occiput on either side or both sides, shooting to the vertex or around the side of the head to the temples, was complained of when the second or third cervical vertebrae, or both, were involved. At the vertex there was a feeling of piercing pain, tenderness, soreness, burning, or of a dull aching. Sudden movements and raising the head on awakening were the common aggravating factors. Dejerine's sign was usually positive. Audible crepitations in the neck on movement were frequently noticed. There would be a tendency for the chief complaint to disappear after the patient got up and about in the morning.

SYMPTOMS OF FOURTH TO SEVENTH CERVICAL INVOLVEMENT

Painful shoulders (Fig. 4) or aching and soreness on the outer side of the neck, and pain, aching, soreness and stiffness up and down the back of the neck (Fig. 3) were complained of when the fourth, fifth, sixth or seventh cervical vertebrae were involved. The pain radiated down the outer part of the arms, often to the base of the thumbs, and occasionally paresthesias in the fingers in the form of tingling and numbness were part of the picture. When the shoulder joint was also the seat of arthritic changes, shoulder crepitation was an added symptom. To the laity the condition of painful shoulders is commonly known as neuritis, neuralgia or sore arms. In the older literature particularly, one finds the names "idiopathic brachial neuritis" and "neuralgia," and the comment that the disease occurs frequently in people with "gouty diathesis."^{13 14} The shoulder joint also receives considerable undeserved attention because the pain is referred to this area. When the anterior roots are involved, ulnar and radial nerve injuries must be differentiated. Con-

fusion with the muscular atrophies involving the shoulder girdle have been reported.¹⁵

SYMPTOMS OF SECOND TO FIFTH DORSAL INVOLVEMENT

Heart disease occupies the attention of the patient when the second to the fifth dorsal vertebrae are involved, and the physician too is apt to be misled by complaints of pain and aching over the precordium with radiation in an anginoid manner toward the shoulder, to the armpits, and down the inner side of the arm, often to the small finger (Fig. 5). In introspective individuals a certain amount of tachycardia and fear of breathing are concomitant sensations. Soreness, paresthesias such as numbness and burning, are also noted. The physician recognizes the exaggerated apprehension of the patient and there is simulated the picture of the neurotic, or irritable heart or, if the attack is severe, angina pectoris. Unlike the patients with angina pectoris, however, the blood pressure of the patients in this series was within normal limits or somewhat low, and other evidence of vascular disease was absent. These patients get little relief from the usual symptomatic treatment, their complaints are persistent, they see many doctors, and it is not unusual to find that they have been labeled as neurotics or classed under other "waste basket" terms. The outstanding feature of this syndrome, however, is aggravation or onset of symptoms with movements of the spine even when the patient is at rest, such as sitting in a chair, or being awakened at night by pain. These night pains are often relieved by change of position. Kilgore,¹⁶ under the title of "angina pectoris and pseudo-angina pectoris," reported a study of 253 cases with precordial pain. In this group 107 were over age 40. He noted that in the normal group the most common type of precordial pain depended on certain movements of the left arm, position in bed, etc.

When the symptoms in the upper chest are most severe on the right side and Dejerine's sign to coughing and sneezing is positive, the condition may be diagnosed as tuberculosis or pleurisy. If the patient is a woman in the cancer age, she, and the physician too, focus considerable attention on

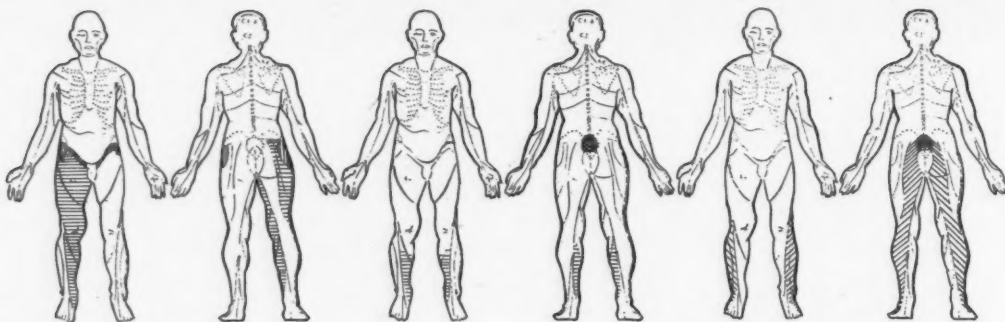


Fig. 8.—Radicular distribution, lumbar 1, 2, 3, 4; meralgia paraesthetica, hip-joint and knee-joint disease.

Fig. 9.—Radicular distribution, lumbar 4, 5, sacral 1, over the sacrum, lumbar 4, inner side of legs.

Fig. 10.—Radicular distribution, lumbar 4, 5 and sacral 1, over the sacrum with radiation over sacral 1 and 2, commonly spoken of as "sciatica."

the breasts and surgery for the removal of a "pea-sized" benign cyst may be the result. Cases of each of these have occurred in this series.

SYMPTOMS OF SIXTH TO NINTH DORSAL INVOLVEMENT

Osteoarthritis of the sixth, seventh, eighth and ninth dorsal vertebrae causes pain, burning, tingling, heaviness, pressure, stabbing and "gas" in the epigastrium (Fig. 6), and the patient associates these symptoms with the digestive apparatus. Three patients in this series first consulted gastroenterologists and surgeons for such conditions.

Involvement over the same area, with manifestations greater on the right side, produces pain or aching over the right upper quadrant with radiation along the ribs to the shoulder blade, or across the abdomen. This area covers the topographical distribution of dorsal roots six to nine and is the same area over which pain from a diseased gall bladder is referred (Fig. 6). Pain in this area requires a differential diagnosis from disease of the gall bladder. Osteoarthritis of the spine with radicular distribution of pain may perhaps account for the large percentage of gall-bladder operations which fail to give relief. Muller,¹⁷ in a discussion of the noncalculus gall bladder, pointed out that from 30 to 40 per cent of patients still complain of symptoms after operation. He urges against the diagnosis of gall-bladder disease on threshold symptoms, and against surgery of this organ in the absence of *gross demonstrable* lesions as shown by cholecystography and other methods. The findings in this series indicate the necessity of a very careful analysis of each case and the presence of osteoarthritis of the spine, when the symptoms of gall-bladder disease are not outstanding, should be given careful consideration. In this series are cases in which visceral disease and osteoarthritis with radicular symptoms coexisted. The trains of symptoms produced by each could be separated without great difficulty.

SYMPTOMS OF TENTH TO TWELFTH DORSAL INVOLVEMENT

When the tenth to the twelfth dorsal roots are affected, the appendix receives considerable attention on the right (Fig. 7), and in women the

tubes and adnexa if symptoms are greatest on the left. Pain, aching and stabbing (the latter usually in the right lower quadrant) which may or may not be referred to or from the small of the back are common complaints. If the existence of pain referable from a distant source with origin in the spine is kept in mind in the differential diagnosis of this area, the diagnosis of appendicitis in patients over 35, will not be made on minimal symptoms in the absence of the order of occurrence of symptoms, as stressed so strongly by the late John B. Murphy.¹⁸ A careful history will bring out the relation of pain to movement, and other areas not complained of will be discovered.

SYMPTOMS OF UPPER LUMBAR INVOLVEMENT

Pain, burning or aching starting over the upper part of the thigh at or behind the iliac crests, or at the sides of the thigh with radiation into the area over the inguinal ligament, or downward across the front of the thigh to the knee (Fig. 8) were complained of when the osteoarthritic process was localized in the upper lumbar vertebrae. Rosenheck¹⁹ considers osteoarthritis in this region as a cause of meralgia paraesthetica. When the radiation is confined to the upper part of the thigh, the condition may be confused with hip-joint disease. Such pain, as in the shoulder region, is too often ascribed to arthritis of the neighboring joint. In our cases the *fabere* sign, as suggested by Patrick,²⁰ was noted and such cases were not included unless the complaints and sensory changes were purely radicular in distribution. Localized pain over the sacrum was often present concomitantly with pain on the inner sides of the legs (Fig. 9). This is explained below.

SYMPTOMS BELOW THIRD LUMBAR INVOLVEMENT

Pain over the sacrum which radiated downward along the anatomical distribution of the first and second sacral spinal roots (Fig. 10) or localized pain over the sacrum associated with pain on the inner side of the legs (Fig. 9) was found when an osteoarthritic process was present anywhere below the level of the third lumbar vertebra. A similar condition and distribution was

found also when a sacralized transverse process of the fifth lumbar vertebra was present. Distribution of pain over the first and second sacral roots is commonly called sciatica (Fig. 10) and includes the cutaneous distribution of the posterior cutaneous nerve of the thigh (roots S1-2) and the peroneal division of the sciatic nerve (roots S1-2). Paresthesias, such as numbness and tingling over the posterior surface of the thigh and over the dorsum of the foot, were occasional symptoms.

Involvement of the anterior roots at this level will show a picture of absent or sluggish knee jerks, or of ankle jerks. The picture is difficult to differentiate from tabes, and one may be puzzled at the absence of characteristic spinal fluid and other serological confirmatory data. Two cases, not included in this series have been studied, in which altered knee kicks and considerable muscle atrophy were present. The electrical reactions showed a partial reaction of degeneration. Babinski²¹ and Ganter²² have reported similar cases under the heading "Pseudotabes Spondylosique." Sachs and Fraenkel²³ also reported a case without muscle atrophy. The findings were confirmed by laminectomy. Bassoe⁹ also referred to the same condition and remarked on the fact that all cases with loss of knee kicks and ankle jerks are not due to syphilis.

SUMMARY

This study of the radicular syndrome is based on the analysis of the symptoms in thirty cases of spinal osteoarthritis. The syndrome consists of restricted mobility of the spine, root pain and root sensory alterations, produced or aggravated by movement and associated with Dejerine's sign.

Under the heading of "movement causing pain" may be grouped certain characteristic phrases of the patient, such as, rising from a sitting position; raising the head on awakening; getting out of bed; walking; sitting in one place for any length of time; sudden change of position while sitting or lying; lifting; stooping; straightening after having been bent over; inability to sit up in bed, and the necessity of rolling out of bed on one side. Under this category may be listed the reproduction of symptoms which sometimes occur during the physical examination, in determining the mobility of the spine.

Dejerine's sign is a term applied to the production or aggravation of symptoms of a root nature, by coughing, sneezing and straining, as at the stool. Under the last may be placed the tendency of the patient to support the body on the hands by placing them on the stool seat during the act of defecation—a purely mechanical protective mechanism. The induction or aggravation of symptoms by one of this triad is considered pathognomonic of the presence of a radiculitis.¹¹ When present it is a valuable sign. It does not, however, give a clue to the etiology. The presence of crackling in the neck or in other joints, during movement, Heberden's nodes and x-ray evidence of spinal osteoarthritis, when associated with Dejer-

ine's sign furnishes presumptive evidence of the etiological factor.

Pain at night which awakened the patient and necessitated a change of position for relief was a characteristic symptom. Although the patient complained of one side more than the other, bilateral involvement was the rule. Questioning was sometimes necessary to bring out the bilateral nature of the symptoms.

Lying flat on the back, or on a preferred side, a hard mattress, the wearing of a corset which adequately immobilized the affected spinal vertebrae, strapping and physiotherapy such as baking, heat and massage were measures which afforded symptomatic relief.

Radiculitis, by definition, is a disease process confined to the spinal roots. If the radicular syndrome is to be successfully recognized, a working knowledge of the cutaneous distribution of the spinal roots (Fig. 1) and a careful history are essential. The former is necessary to differentiate between processes which involve the peripheral nerve and the spinal cord substance from those which involve the nerve root, and the latter is required for an accurate interpretation of the symptoms. The necessity of an accurate history cannot be stressed too strongly.

In the present illness, it was commonly found that the patient outlined the roots involved in the chief complaint with anatomical accuracy. In the past history, however, areas which had been troublesome at some previous date, but symptomless at the time, were not always outlined clearly. In either event, it is important to determine the limits of each symptom-bearing area, and the extent of radiation of symptoms, because, in certain regions of the body, roots which are widely separated in the cord, supply adjacent cutaneous areas (note the heavy lines in Fig. 1). If this procedure is adopted, the information obtained will prove an ample reward for the additional effort spent. The charting of such areas, and a listing of the involved roots will tell a story of progression of symptoms over a period of years and from the chart and the table, the spinal vertebrae involved in the osteoarthritic process can be anticipated.

DIAGNOSIS

The diagnosis depends mainly on a good history in which the symptom-bearing areas have been accurately determined and their distribution compared to that of the spinal roots and the peripheral nerves. The radicular syndrome is characterized by the root distribution of symptoms. Sensory and motor alterations if elicited are also distributed according to the spinal root topography. The outstanding characteristic of this syndrome is the relation of symptoms to movement of the spinal column, and their association with Dejerine's sign. The presence of the latter is considered pathognomonic of radiculitis.

In the chief complaint a root or group of roots is usually outlined by the patient with great accuracy. It is this group of symptoms in the radicular syndrome of spinal osteoarthritis which is most

often confused with the pain of visceral disease. Over the left upper chest and inner side of the arm, it is the heart (Fig. 5), and over the right upper quadrant, the gall bladder (Fig. 6) which receive the concern of the patient and the attention of the physician. And not without reason, for it is over the same roots in their respective locations that pain from these organs is referred. However, the very definite relation of such root symptoms to movement of the spine and their association with Dejerine's sign, and the absence of the evidence necessary for the diagnosis of visceral disease in a given location, will indicate the presence of a radiculitis. The past history also helps greatly in the differential diagnosis from visceral disease, for in the syndrome associated with spinal osteoarthritis, it discloses involvement of other root areas accompanied by symptoms of a similar nature to those found in the chief complaint. The physical examination will reveal varying grades of restricted mobility in the spine. The sensory examination with the cotton-tuft when properly done will reveal alterations in sensations to light touch which correspond to the roots involved.

Having established the presence of a radiculitis, the diffuse, bilateral root involvement, the impaired mobility of the spine, the presence of crackling on movement, Heberden's nodes, and x-ray evidence of an osteoarthritic process, aids in establishing the osteoarthritic etiology of the syndrome.

The cutaneous root areas involved, as determined in the history, should correspond to the regions of the spinal column which showed impaired mobility on the physical examination. For example, symptoms over the lower abdomen between the umbilicus and the inguinal ligaments are due to involvement of the tenth to twelfth dorsal roots. Over the back, these roots supply the cutaneous area directly overlying the spinous processes of the lumbar vertebrae. The restriction in mobility should be present, however, in the lower dorsal region of the spinal column, since these roots emerge from the foramina between the ninth dorsal and the first lumbar vertebrae (Fig. 7). The data of the roots involved obtained from the history, and the restricted mobility of the spinal column found in the physical examination enables one to anticipate with considerable accuracy the vertebrae which will show involvement on x-ray examination.

COMMENT

Hypertrophic osteoarthritis of the spine is a common disease. It is conceivable that symptoms from nerve root involvement in this disease may be present as the sole cause of disability, in the absence of visceral disease, or it may coexist with visceral disease. In middle-aged adults, where pain is an outstanding symptom, a careful symptom analysis is necessary. If impaired mobility of the spine is present in regions which correspond to the cutaneous area of symptoms according to spinal roots, the radicular syndrome as an explanation of symptoms should be considered. If the radicular syn-

drome is found to be present, it should be accorded its proper place in the disease picture, since it may simulate many visceral diseases and in turn it may mask the presence of visceral disease which may not be outspoken in its symptomatology.

CONCLUSION

An analysis of thirty cases of hypertrophic osteoarthritis of the spine has been presented. Bilateral radicular sensory disturbances can be demonstrated which correspond to the vertebrae involved.

Spinal osteoarthritis, root pain and root sensory alterations are definitely associated in a clinical syndrome of pain dependent on motion of the spine, or upon relaxation of the supporting structures of the spine. The radicular syndrome of spinal osteoarthritis is characteristic enough in its manifestations to be recognized as such and to be differentiated from the visceral diseases which it may simulate, and from the visceral diseases which it sometimes masks by its outstanding symptom of pain.

I wish to express my appreciation to Dr. William J. Kerr for his invaluable assistance and encouragement in this work.

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DISCUSSION

JAMES F. CHURCHILL, M. D. (1310 Medico-Dental Building, San Diego).—I heard Doctor Gunther give a preliminary report on this work a few months ago. I was so impressed by it that I urged him to present it before this section. I feel that this is one of the most valuable papers we have heard in this section for a long time. It has been my observation that internists and general practitioners are either unfamiliar with the radicular syndrome, or else give it little thought in differential diagnosis. Orthopedists have known about it for a long time. Neurologists are apparently quite familiar with it, but the men in general medicine and general surgery seem quite unaware of the frequency and importance of this group of symptoms. I believe that in consultations I have seen more errors in diagnosis from a failure to differentiate pain from this source from that of visceral origin than from any other one cause. We have all seen appendices and gall bladders removed for the relief of persistent pain, and have noted that many of these patients did not experience the relief which had been promised and expected. If these cases are carefully examined it will be found that in many instances the pain is due to a radiculitis.

Strangely enough, textbooks of medicine make no mention of radiculitis. In the differentiation of radiculitis from intra-abdominal pain one little test is of great help. Tenderness or pain from radiculitis is elicited fully as well by picking up and gently pinching the skin and subcutaneous tissue as it is by pressure, while pain and tenderness of visceral or peritoneal origin is only produced by pressure.

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MILTON B. LENNON, M. D. (384 Post Street, San Francisco).—One can hardly estimate the amount of time and patience that Dr. Gunther employed in carefully working up the material for his paper. While he had gone much into the literature, he can well claim a certain originality since he had quite thoroughly completed his work before he found that earlier and almost forgotten labors had been done in the same field.

We have all known that root pain is a very common symptom of vertebral arthritis, but little have we realized that root involvement could be clearly demonstrated in an objective way. The present *arbeit* has clearly shown this to be so. However, one must realize that such changes are not marked and that the most painstaking care is necessary to demon-

strate them. The utmost attention and extreme application on the part of the examiner are required.

Fortunately Dr. Gunther has the latter requirement and hence we have his striking contribution to our knowledge of radiculitis.

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HOWARD H. MARKEL, M. D. (384 Post Street, San Francisco).—This is not by any means a "radiculose syndrome" as some of Doctor Gunther's confrères have jokingly called it. It may be new to internists but it has been known by neurologists and treated by orthopedists for years.

Probably the pathology has not been definitely established until recently, but the fact that osteoarthritis of the spine could refer pain into various parts of the body has been well established. But the exact mechanism by which this occurs has been difficult of proof. However, Putti of Bologna in recent years has established the fact that there is an extension of the inflammatory reaction from the edges of the articulations of the spinal vertebrae into the intervertebral foramina, causing inflammation of the nerve roots.

Peculiarly enough these osteoarthritic changes occur in certain or definite regions of the spinal column, and they are localized there by the factors of mechanical strain due to the upright position of man. In the infant the vertebral column is practically straight, but as he assumes the upright position, the weight of the body causes a primary curve forward in the lumbar region. This is followed by the development of secondary curves forward in the cervical and coccygeal regions, with posterior curves between, so that the column becomes a series of curves.

Due to the effect of mechanical strain and excess of movement at these points arthritic changes become localized at three places. In the order of their frequency:

First, Lower Cervical.—This causes referred pain from the occipital regions of the head and neck into the shoulders and down the arms and is popularly called "neuritis." There is another common cause of so-called neuritis and that is a bursitis of the subdeltoid bursa and the two conditions must be carefully differentiated, for the treatment is very different in the two conditions.

Second, Lumbosacral Region.—This is a favorite position for arthritic changes which cause symptoms commonly called lumbago and sciatic rheumatism.

The third and least common place is in the region of the dorsi lumbar junction. Here the pain is referred to the region of the lower abdomen usually and frequently simulates a chronic appendix or salpingitis.

I remember one man who had had four laparotomies for right abdominal pain, without finding any visceral pathology and without relief until his back was treated; also a woman who had had three operations with the same result.

If the pathological process is higher up, the pain may simulate gall-bladder disease and quite frequently x-ray plates of negative kidneys have shown me arthritic changes as the cause of the pain.

The diagnosis frequently must be made by exclusion in the cases of abdominal pain. However, by ruling out organic disease of gall bladder, stomach, bowel, kidney, etc., by physical examination, laboratory and x-ray findings, the diagnosis must be made of radiculitis, when the positive findings in the affected regions are areas of hyperesthesia or hypesthesia, with limitation of movement, or painful motion with or without x-ray evidence of hypertrophic arthritis.

Treatment.—The treatment is not medical or surgical, but is mechanical or physiotherapeutic; i. e., applications of heat in one form or another, stretchings of neck or back, massage and manipulations with some sort of immobilization, either adhesive strapings, or better a brace or cast. Extreme cases will require manipulation under anesthesia and a cast.

These are some of the cases that obtain relief at the hands of the osteopaths and chiropractors. The

medical profession should recognize these conditions early and institute proper treatment, and thereby keep their patient's confidence and loyalty.

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JOHN HOMER WOOLSEY, M. D. (University of California Medical School, San Francisco).—Doctor Gunther has called our attention to a very definite entity that, because of its simulation of symptoms and signs of possible chronic or subacute intra-abdominal lesions, should be eliminated before proceeding with any treatment of the latter. For example, today a patient consulted me in regard to a right inguinal pain for which a hernioplasty was unnecessarily performed in October, 1927, and the cause of this pain I find due to a fractured lumbar vertebra and an associated osteoarthritis.

In the recognition of this condition, the patient's clinical history is of first import and is usually as Doctor Gunther has stated: Aching pain, distributed according to the nerve roots involved, aggravated by motion of the spine or by long duration of one position as walking, lifting, sneezing, coughing, rising from sitting, sitting down, getting out of bed, turning in bed, sitting in one position, riding over a rough road, etc., and relieved by rest, as by a hard bed, a corset, strapping, heat, light massage, etc.

Physical examination is second in value and reveals such data as sensitive areas over the corresponding irritated nerve distribution, painful points over the nerve roots, and lack of mobility of the spine.

A negative history and negative physical findings of simulating lesions should, I believe, be obtained before coming to a definite diagnosis of radiculitis.

Therefore, the lessons from this paper are that radiculitis is a definite clinical entity, and that in the diagnosis there is the need of a good clinical history and a complete and thorough physical examination.

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DOCTOR GUNTHER (Closing).—The wide scope and possible application of the radicular syndrome of spinal osteoarthritis is indicated by the discussions which have been participated in by an internist, a neurologist, an orthopedist, and an abdominal surgeon.

In this study I have been primarily interested in the sensory alterations to light touch as demonstrated with the cotton-tuft, and have not adequately employed certain other tests in the sensory examination, particularly the one mentioned by Doctor Churchill. This test falls into the group of cutaneous pinching tests described in considerable detail by Doctor Carnett,¹² a surgeon associated with the graduate school of the University of Pennsylvania.

Since the sensory examination as I have conducted it, proved to be a laborious and time-consuming procedure, it would be valuable to have a test more suitable for routine clinical work. The test described by Doctor Churchill can certainly be quickly applied and if positive, enables a rapid differentiation between skin hyperalgesia and intra-abdominal pathology associated with peritoneal irritation. I plan to use this test as a check on other forms of the sensory examination.

The mechanical strain factors brought out by Doctor Markel run quite parallel to the regional incidence in this analysis. One cannot ignore the mechanical factors in the maintenance of symptoms, inasmuch as immobilization by mechanical means at the present affords the greatest symptomatic relief. Doctor Markel's reference to the osteopathic and chiropractic practitioner is timely. On the medical service of the University Hospital, we often meet this condition. I have been impressed by the number of patients with the radicular syndrome who have visited cultists after having been to a regular practitioner.

I wish to express my sincere appreciation of the discussions and suggestions made by Doctors Churchill, Lennon, Markel and Woolsey.

TREATMENT OF NEUROSYPHILIS BY MALARIA—FOURTH ANNUAL REPORT*

By PAUL A. O'LEARY, M. D.
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DISCUSSION by Frederick Proescher, M. D., Agnew;
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Los Angeles.

THIS is the fourth annual report of the status of the one hundred patients suffering from neurosyphilis who were treated with malaria in the Mayo Clinic between May, 1924 and January, 1926. Two hundred and forty-one other patients have been treated with malaria during the last two years, but the results of their treatment will not be included in this report. The importance of long periods of observation following treatment with malaria was emphasized by Wagner von Jauregg in his first communication. It is my purpose to continue the observation of this original group of one hundred patients as long as possible.

TABETIC GROUP

The tabulation represents a yearly summary of results in the group of fifty-seven patients having general paralysis who were treated with malaria. The degree of remission in this group has been estimated on the economic status of the patient, and on his ability to maintain his former occupation or to regain his place in life as a wage-earner, if necessary, by undertaking more menial work than formerly. The changes in the objective manifestations of the disease were not considered in this appraisal.

It is difficult to interpret the results of treatment with malaria in a statistical summary. The statement that a certain percentage of the patients are now in remission may be sometimes misleading because many of these patients still show objective evidence of general paralysis. When the patient is examined for the first time by a physician who had not seen him previous to the malaria course, the inference would be that little good had been accomplished. On the other hand, the members of the family and the physician in charge have observed changes in personality before and after the treatment. For example, it is not unusual to see a stimulated, egotistic and overconfident parietic patient with a sense of well-being gradually change following a course of treatment with malaria to a retiring quiet person who lacks self-confidence and hesitates to make decisions without seeking his wife's judgment. Also the extremely nervous type of person, with the so-called nervous-breakdown syndrome, who is afraid of the future and has made suicidal threats, goes through a series of changes in personality which include the agitated, stimulated phase before settling down to the phase of complete remission. Combinations of the various phases are to be noted, and I believe it is essential not to make

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deductions as to the outcome of the treatment until at least a full year has elapsed.

Certain patients, more than half of those not in remission, are materially benefited by the malaria course. The troublesome paretic patient who is constantly causing embarrassment to his family by his threatening manner, or the one who wanders away and is unable to find his way home may become docile and sullen, and henceforth lead a vegetative existence. On the other hand, I have also observed patients in whom remission developed rapidly following the treatment and who died shortly afterward in a paretic convulsion while apparently in complete remission.

ESTIMATION OF VALUE OF MALARIA THERAPY

In estimating the possible value of malaria therapy for a patient with general paralysis the following facts are to be considered: (1) the amount of good to be accomplished is inversely in proportion to the amount of degeneration, both physical and mental; (2) the possibility of relapse should be borne in mind constantly; (3) almost half the patients treated by this method will be able to resume some gainful occupation; (4) the procedure has definitely decreased the death rate among patients having general paralysis; and (5) the death rate from inoculation of *Plasmodium vivax* approximates 5 per cent. These points having been considered, I believe it essential to stress the fact that the ideal time to use the malaria treatment is when only slight evidence has been shown of clinical and serologic improvement following the routine antisyphilitic measures, and not to wait until the objective signs of general paralysis are obvious.

In my early experience with this method of treatment the serologic changes in the blood and spinal fluid were not considered significant in the interpretation of the results. However, continued observation has shown that reversal to normal of blood and spinal fluid has paralleled the clinical results in most cases, but such improvement has appeared two or three years after the subjective improvement was noted.

Three years after the completion of the malaria course nineteen of the twenty-three patients who showed definite clinical improvement also showed complete reversal of the blood and spinal fluid to normal in all factors. It would seem that the serologic changes which appear several years following the course are more significant than those noted shortly after the course. In several cases in this series there has been decided and rapid reversal of the spinal fluid to normal several months after the malaria course, but the patients eventually remained incompetent or died unexpectedly from paretic convulsions. I do not believe that interpretation of the rapid reversals of the spinal fluid to normal as of prognostic significance is justified. Neither are such changes an indication in regard to further treatment any more than the reversal to negative of the Wassermann test on the blood permits an estimate of cure in latent syphilis. The economic status of the patient remains the outstanding factor in estimating the

degree of improvement and the repeated examinations of the blood and spinal fluid serve only as encouraging factors of the result of treatment with malaria. From clinical observation it would seem that the serologic changes which follow several years after the clinical improvement are the result rather than the cause of this improvement.

NONPARETIC GROUP

The remaining forty-three cases presented the nonparetic type of neurosyphilis. Thirteen of these were in the group of asymptomatic paresis or paresis sine paresi. There were six cases of taboparalysis, and six of asymptomatic neurosyphilis, that is, persistent positive reactions of the spinal fluid without objective signs of involvement of the nervous system. The remaining eighteen cases presented varieties of *tabes dorsalis* such as gastric crisis, optic atrophy, and persistent leg pains which had failed to respond to intensive routine antisyphilitic medication.

In the paresis sine paresi group are included the cases in which the condition of the spinal fluid suggests the eventual development of general paralysis, but in which clinical signs have not as yet developed. The appraisal of the value of treatment with malaria in this group has been based on the general tonic improvement and the serologic changes, and it shows that in eight of the thirteen cases the patients have been markedly benefited in both respects. It is in such cases that the early use of treatment with malaria will probably prevent or greatly decrease the incidence of general paralysis.

The six patients suffering from taboparalysis did not, as a group, do so well. Two died, the disease progressed in two others and clinical signs of paralysis developed, while the condition of the remaining two has not changed. This is in accord with my experience in cases of frank *tabes dorsalis*, in that the results are not so favorable as in cases of general paralysis.

The asymptomatic neurosyphilitic cases are those in which the spinal fluid examinations remain persistently positive but do not show the suggestive serologic signs of general paralysis and do not respond to the intensive use of arsphenamin, mercury or bismuth, or any of the modifications. The estimation of the results of treatment in this group are based on the serologic changes only. In five of these six cases there was complete reversal of the blood and spinal fluid to normal, while in the sixth case the Wassermann test on the spinal fluid was weakly positive, there were two cells, and the benzoin curve was negative. The use of arsphenamin and mercury after the malaria course in this group has been unsystematic and so slight in comparison with the intensive treatment given before the malaria course that it is practically of no significance.

My experience with treatment by malaria in uncomplicated forms of *tabes dorsalis* has been unsatisfactory. Many of these cases are self-limited and spontaneously arrested; in some, however, persistent symptoms continue although there are no serologic changes and no appreciable ad-

vance in the neurologic signs of the disease. Outstanding in this group of cases are two types: the so-called burnt-out or arrested tabes with persistent lightning pains and those of gastric crisis. It has been my experience that the routine use of antisypilitic treatment has been of slight value in these cases.

In the group of gastric crises the original three patients treated with malaria relapsed. However, during the last four years there have been twenty-five cases of gastric crises complicating arrested or burnt-out tabes dorsalis. Fourteen patients in this group have been materially benefited by the treatment. Similar results have not been noted in the cases of optic atrophy. One of the seven patients treated four years ago had not experienced progressive loss of vision, while in the remaining six there has been a steady loss of vision. In my early experience with treatment by malaria I had hoped that a higher percentage of patients with optic atrophy might be benefited. The conditions in the two patients with persistent neuritic pains of tabes dorsalis remain the same; one has been almost completely relieved, and the other has not improved.

In the report made at the end of the third year it was noted that nine of the original one hundred patients treated were dead. During the last year two other patients have died, one with general paralysis who had not been benefited by the treatment with malaria and died in a convulsion; the other was killed accidentally. Eight of the patients who died had general paralysis, two had taboparalysis, and one paresis sine paresi or asymptomatic paralysis. The death rate as influenced directly or indirectly by the malaria course remains 5 per cent, the other deaths having been incidental and not influenced by malaria.

COMMENT

My experience with treatment by malaria during the last four years has convinced me that it is the outstanding method of treating parenchymatous neurosyphilis. The results from the treatment are dependent on the amount and site of the destruction in the brain and spinal cord. It is unfortunate that an appraisal of the objective signs of general paralysis does not always warrant deduction as to the degree of injury the nervous system has already sustained. The same may be said of the duration of the mental symptoms; I have noted some striking results following treatment with malaria of patients who have had symptoms of general paralysis for four years; on the other hand, therapeutic failures have been observed in patients whose mental disease had been recognized only three or four months before the treatment was instituted. These factors render a prognostic opinion difficult. The patient who shows definite clinical evidence of mental degeneration may manifest partial remission following treatment with malaria. He is easily managed and is amenable to suggestions, but has no insight or ambition or ability to take responsibility. The changed personality is obvious. The results in the

groups of general paralysis, paresis sine paresi, and asymptomatic neurosyphilis conclusively show that the earlier in the course of neurosyphilis the treatment with malaria is given the better the results. It is my practice now to give the neurosyphilitic patient one or two intensive courses of arsphenamin, mercury and iodids, or some of the modifications, following which, if there is no clinical or serologic improvement, the malaria course is recommended.

The scientific basis for the use of malaria or other fever-producing agents in the treatment of neurosyphilis has not been established. The method is still used empirically. *Plasmodium vivax* probably does not, in itself, play a specific part in producing the results, and the mechanism involved in stimulating the factors of resistance is not known. The reversal of the blood and spinal fluid to normal, as occurs in most cases in which there is improvement during the second and third year after the malaria course irrespective of the amount of subsequent antisypilitic treatment, indicates that a factor of resistance is involved. Wagner von Jauregg called attention to the delayed serologic results in his early reports and emphasized that they were not paralleled by the clinical improvement until several years later.

In my experience the value of this form of treatment has been proved not only in neurosyphilis but in various other resistant complications of the disease, such as interstitial keratitis and osseous involvement in congenital syphilis.

The Mayo Clinic.

DISCUSSION

FREDERICK PROESCHER, M.D. (Agnew State Hospital, Agnew).—My experience with the treatment of paresis by malaria is a brief one. This treatment I started at Agnew State Hospital in May, 1927, and have applied it to forty-one cases to date. Thirty-one of these will be considered in the discussion, the remaining cases not having been observed long enough to justify a definite statement of results. Of these thirty-one, five are in remission, eleven are improved, eleven unchanged, and four are dead. Only one case came to autopsy. The microscopical examination of the brain showed a complete disappearance of the perivascular infiltration. The iron reaction was slightly positive.

The five cases in remission returned to their former occupations. I agree with Doctor O'Leary that the degree of remission should be judged by the social status of the patient.

There can be no doubt that the malaria treatment of parenchymatous syphilis is the most effective so far developed. The procedure is relatively simple and can be easily carried out in a state institution. On the other hand it cannot be denied that this form of therapy is attended with definite risk to the patient, but with a better knowledge of the complications arising during the treatment, deaths due to therapeutic malaria will be reduced.

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N. N. EPSTEIN, M.D. (384 Post Street, San Francisco).—The entire armamentarium of antisypilitic drugs frequently fails to check the progress of a syphilitic infection of the central nervous system. Often we are at a loss as to what to do for a patient who continues to go downhill rapidly in spite of intensive therapy with the arsphenamins, mercurials, bismuth preparations, and the iodids. The malaria therapy offers a new mode of attack upon this problem, and its value has been proved conclusively. There is no

doubt but that this treatment has prolonged and made more useful the life of many of these patients.

Our experience at the University of California has not been great, but the results in some cases have been very gratifying. It was found most difficult to keep an active strain of malaria over a long period of time. On several occasions the strain was lost either by its dying out spontaneously or by having to stop it because of a critical condition arising in the patient. At present we have kept an active strain of malaria for several months through the coöperation of a number of hospitals.

The best results were obtained in the paretic group. Three patients who were completely incapacitated previous to the malaria therapy have returned to work and have filled their positions satisfactorily for two years. Others have not been followed long enough to see how much improvement will be obtained.

Doctor O'Leary has emphasized that malaria therapy should be used on all types of syphilis of the central nervous system which fail to react favorably to antisyphilitic drugs. We have used the treatment on several cases of *tabes dorsalis* who did not obtain relief from their pains and crises by drug therapy. It was noted that the lightning pains became very much accentuated at or shortly after the time that the patient had his malarial chill. Several of these patients have benefited very definitely from the treatment.

We feel very much as Doctor O'Leary, that the malaria therapy is very valuable and its use should be extended to other types of resistant syphilis.

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H. P. JACOBSON, M. D. (1016 South Alvarado Street, Los Angeles).—Doctor O'Leary has done us a great service by directing our attention to a method of treatment of certain types of syphilis which has to date received altogether too scant attention in this country. After all is said and done, the handling of latent and active late syphilis must resolve itself into an attempt to dislodge the *Spirochaetae pallidae* from their moorings and, if possible, cause the destruction of as many of their colonies as the particular occasion will permit.

While in the early stages of the disease, when the spirochetes are loosely attached to the tissues and not completely at home, so to speak, our specific chemotherapeutic agents—the arsenicals and bismuth compounds—are fairly able to take care of the situation by their destructive action upon the organisms (in the latent and late stages of the disease this is very often not the case) because the *Spirochaetae pallidae* have in a great percentage of cases become a biochemical part of the tissue in which they reside and therefore not available to the lethal action of our specific chemicals.

In view of that fact it is quite obvious that any method of treatment which promises the successful detachment of the organisms from their "hiding places" and at the same time is able to hinder their further existence should command our serious attention.

Theoretically, malarial inoculation offers these therapeutic possibilities. It is likely that the severe chills caused by the *Plasmodium vivax* result in a "revolution" in the infected tissues and a consequent detachment of the *Spirochaetae pallidae* from their "hiding places." The marked and sustained pyrexia, on the other hand, may exert a direct destructive effect upon the spirochetes, as it is known that these organisms do not withstand a high degree of temperature very well. In addition there is a possibility of some sort of relationship between the malarial and syphilitic organisms as well as a nonspecific protein stimulation of the immunity mechanism of the sufferer by way of the reticulo-endothelial system.

These theoretical considerations, coupled with my limited experience with this form of treatment plus the favorable results obtained by such competent investigators as the essayist, lead me to believe that malaria inoculation should constitute the treatment of choice in cerebrospinal and other types of syphilis which do not respond to our specific chemotherapeutic agents.

UROLOGY—A REVIEW OF RECENT ADVANCES*

By E. SPENCE DE PUY, M. D.
Oakland

THE fortunate province of a chairman is to call the attention of his section to whatever new developments seem to him worthy of consideration. In the past year there has been nothing startling in the field of urology. There has of course been much new work done, some of it perhaps of that foundational character which will at a later date prove the basis for greater developments than are at the moment discernible.

When we have accomplished a certain something that appears to have added to the sum total of our knowledge or achievement, we find it necessary to pause awhile and orient ourselves from the new height to which we have laboriously made our way.

At the moment, urology is on one of its high plateaus. Our specialty in medicine has accomplished so much in the way of refinement of diagnostic procedure, has consolidated its discoveries to so remarkable a degree that for at least a little while it seems somewhat difficult to attain to higher levels. It is at times like this when, pointing with pride to the readiness with which we lay bare the secret diseases of the urinary tract, we are in danger of becoming to some degree complacent.

If for a moment we do not press forward resistlessly, the resting space is probably a little in the way of reward for having made the upward struggle. For the real urologist, the wholly scientific man, ablaze with the zeal for conquest of usable life-promoting knowledge, the hesitation will be but momentary, hardly more than breath taking; it will be only the smaller mind that will linger in rapt contemplation of his admirable acts; and he, by the very laws of nature, will be quickly left behind while others, struggling on towards further heights will soon look back upon the past and consider it a commonplace lower level.

In the advance from our present station to a distant pinnacle now raising its head in the clouds beyond our vision, and which it will require a strain to reach, it will hearten us for the fresh Alpine dash, if in quick review, we appraise the distance from whence we have made our way.

Urology, now recognized as a distinct specialized branch of medicine, has not always enjoyed this honor. In urology's early days, some few men of unusual ability, and a special liking or aptitude for mastery of urological diseases, distinguished themselves by conspicuous success in the management of the afflictions peculiar to the urinary tract, but, zealous as they were, they could not, mainly because of mechanical handicaps, do more than make urology a type of work to which they directed specialized attention.

IMPORTANCE OF MODERN-DAY INSTRUMENTS

How large a part mechanics has played in the development of our specialty, we all appreciate,

* Chairman's Address, Urology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30-May 3, 1928.

yet it seems not inappropriate to mention them here. The idea of looking into that hollow viscus, the bladder, as conceived by Nitze, was hardly more than a hope, a dream, until a wizard presented us with a cold miniature lamp for safe illumination, and this was the first great step. The next tremendous stride was the ureteral catheter. And what cunning and skill it required to devise a hollow tube of sufficiently narrow diameter and yet of great enough lumen to collect urine from the kidneys. Commonplace, these things today, yet there are men in our section who do not even recall the time when these conveniences did not exist, and who know nothing of those men to whom the catheterization of only one of the ureters was an accomplishment of the first magnitude. What is with us an everyday routine procedure would be impossible without the cystoscope and ureteral catheters and our specialty could be nothing but the guess it used to be.

Bransford Lewis, in 1907, tracing the growth of urology and citing the important contributions and naming the outstanding personages through whose labors we have come even so far as we have, traced urology from its earliest feeble efforts to overcome the difficulties which our modern equipment has made it so easy to handle.

Caulk, in a recent address, points out that man's first surgery was directed toward the urinary organs. Some thousand years B. C., the catheter, such as it was, was used to relieve retention of urine, and sounds were used to dilate strictures, so it must have been that even in those early days the moral problem and the consequences resulting from promiscuity gave as much concern as it does today. In those early pre-Christian days, they also had to their credit the widely practiced art of cutting for stone, or perineal lithotomy.

Upon the foundation of Nitze's cystoscope has been built modern urology, a specialty which has grown to such extent that today we have independent urological hospitals, and almost all general hospitals have their urological departments. This splendid achievement has only been made possible through the untiring efforts of those who blazed the way and who at the time were hardly thought of as pioneers. Not so long a distance in the future, however, another generation, looking back upon our present day work, may speak of our accomplishments as of pioneer type also. As we see them now in retrospect, we can appreciate the fact that really notable foundational work was done by a few outstanding men whose names come to us automatically as the great men of their time—Guiteras, Lewis, Young, Cabot, Caulk and Schmidt, for example, even though one does not endeavor to call a complete roll. And, in our own West, we can be proud of the contributions to our branch of medicine of such men as Chismore, MacGowan, Krotoszyner and Rigdon, to say nothing of the younger men who have taken up the work and carried it forward; and we are glad to know that many of them are of our present assemblage.

It is safe to say that we cannot rest upon what we have done, nor upon what we are doing now.

Growth is under the compulsion of continuance. We have two great obligations. To continue the quest of knowledge, both abstract and concrete, and to apply that knowledge to the development of technique. Along with this, we have ever and always the practical necessity for disseminating that knowledge. This is not to teach the general practitioner, either medical or surgical man, how to perform urological procedures, but to make him fully cognizant of what are the danger signals in order that he may seek competent help.

RELATION OF GENERAL PRACTITIONER AND UROLOGIST

Always we must carry on an educational campaign. That is as much a part of our work as are any of the tasks we undertake. Some things are best left to the specialist. The urologist cannot treat glaucoma, nor operate upon the ossicles of the ear; the law gives him the right but he has no business to exercise that legal privilege; no more can the case of hematuria, either gross or microscopic, be searched out and adequately dealt with by the general man. He has the legal right, but has he the moral right? Has he the specialized knowledge that makes such undertakings hard even for the man who devotes his whole time to the study of urological diseases? He himself knows that he has not, and when he attempts it, it is frequently against his better judgment.

We must be hampered by no false conception of the general man's attitude toward our preaching. He is not antagonistic to it, he welcomes it. The general man, either medical or surgical, is often too busy. Frequent contact with conditions which nature herself heals under favorable conditions sometimes engenders undue and unjustified optimism. When calamities result from neglect, no one is more shocked than the man who has overlooked the danger signal. We have all had medical friends who have admitted in private that they did not realize that tuberculosis and hypertrophied prostate, with renal back pressure, were creating an intolerable condition. We have all seen large residual urines inexcusably catheterized once or twice a week. The general surgeon, even today, has not been made to realize the enormity of the offense in taking a prostatic from home to hospital and operating the next day. If such practice is common, the fault is ours. If a nephrectomy is done without knowledge of what the other kidney is worth, or even whether there is another kidney, again the fault is ours because we have not yet sufficiently made clear the necessity for urological investigation. Let us keep on preaching.

Is the general surgeon to be his own urologist? As a general thing this feat cannot be done and this is a fact that might as well be realized. The bigger the surgeon, the oftener he asks for help. No man can be an "all-round specialist." There are certain refinements of technique that no one need be ashamed to admit he has not mastered; highly specialized instruments require special skill, and the ability to determine the value of diag-

nostic evidence can only be acquired by time and experience.

Why exploratory operations for many kidney diseases must be done, is difficult to understand, as in most instances all desired information may be obtained by other means. We frequently hear it said that anyone can take out a prostate. Perhaps almost any surgeon can drag the prostate from its bed, after a fashion, but with what results?

If we desire to do the things that properly fall within our specialty, we must do them better than others can do them. We must do them sufficiently better than others so that when the hospital staff has its regular meeting for analysis of mortality statistics, our mortality and our end-results will stand out as conspicuously better than the results of the general man. Let us therefore continue to keep our standards high; to be continuously self-critical and determined with each succeeding year to do a little better work than we have in the year we have left behind.

532 Fifteenth Street.

A NEW EMPHASIS IN MEDICINE*

By LOVELL LANGSTROTH, M. D.
San Francisco

DISCUSSION by James L. Whitney, M. D., San Francisco;
Charles D. Lockwood, M. D., Pasadena.

THERE are many discordant notes in the attunement of medicine to the pitch of America's life. Much of the research in physical education, mental hygiene and nutrition has originated from medical sources while the propaganda for its application has been left to other groups. The great body of practitioners thus rarely assumes leadership in matters concerning conservation of health though established in a confidential relationship with those most in need of it. This indifference has resulted not only in doubt but in actual loss of faith in medical orthodoxy. It finds its answering expression in appeal to a philosophy which denies the reality of suffering, in recourse to the manipulations of various adjusters or in frank discouragement and pessimism. The seeds planted by research in the new fields of health must be tenderly nurtured by medicine if their fruits are to nourish progress.

MEDICAL FIELDS STILL OPEN TO INVESTIGATION

Fourteen years of practice and close association with medical education have perhaps earned me the privilege of kindly criticism of both. They have been years of continuous attention to a great deal of medical literature, of interest in psychology, philosophy and education in their application to the problems of living. They have given me an increased interest in the problem of personal health and a better equipment with which to advise people how to acquire it. But they have been years of growth on a different plane from that of the standardized ideas of medical practice and education—a plane from

which it is possible to see in deeper perspective and so beyond the immediate horizon. Things which formerly loomed large are now dwarfed by potentialities of this wider vision. Earlier objectives and methods now fail to interest or stimulate so fully, because when applied to the problem of personal health they seem inadequate. A broader conception of the function of the physician is envisaged.

WHERE MEDICAL PRACTICE GETS PROMPT RESULTS

I should first make it clear that there is a broad field of illness where medical response is prompt and generally adequate. This includes the injuries resulting from accidents, the acute illness resulting from infection and in general all disease where therapy is clear and positive. There is rarely any doubt of the practitioner who spends his energies reducing fractures, operating on acute infections of the abdomen or helping womankind through the difficulties of childbirth. His technique in these procedures is usually sure and adequate and earns him the respect and affection of the community. When disease is frank and outspoken and particularly where it affects structure, the profession functions up to the limit of what we can reasonably expect of human beings.

OBSCURE DISEASES NOT YET ADEQUATELY TREATED

But what of the disease that has not reached the structural stage? A great proportion of human beings spend the latter half of life complaining of unrelieved fatigue, or headache, or backache, or indigestion, or nervousness for which a cause is rarely found. The attitude of medicine toward these sufferers is often characterized by the complaint of a splendid young medical consultant that so few of his patients had anything the matter with them. There is a general helplessness, almost a resentment in the face of disease which does not visibly affect structure.

What are the standards by which these men judge health? Is there no difference between these chronic complainers who have nothing the matter with them and those persons who never complain—no difference except that of an irritable nervous system which we resent and dismiss? Are there no health criteria besides blood pressure and heart sounds and urine examinations? In this connection there comes to mind an acquaintance encountered by chance during a summer vacation in the mountains. Alarmed by the sudden unexpected death the previous winter of several of his contemporaries he had visited a physician and come away completely reassured and fortified in his manner of living by the fact that his blood pressure and heart sounds and urine were normal. Now this gentleman's excesses at the table and bottle were not only commonly known, they were painted in colors no discerning eye could miss, in his lumbering gait, his protruding paunch, his beefy face and his general sodden appearance. It was entirely a question of chance how long the accident of a superb inheritance of

* Read before the San Francisco County Medical Society, February 14, 1928.

vitality would allow him to escape the consequences of such living. And what is to be said of the criteria by which a middle-aged woman who had a series of "heavy colds" every winter was declared to be "all right"? Stressed by a problem of adjustment, hurt by life, driven into a frenzy of club activities as an outlet, this tired, pallid woman with bluish circles under her eyes continued her method of living because there were no signs of tuberculosis in her lungs. Such mechanistic inelastic health criteria are no measure of a person's ability to function up to fullest capacity.

POSITIVE HEALTH AND ITS SIGNIFICANCE

We must have new standards for comparison in matters of health. I have pointed out that the present practice is to mark the beginning of disease by structural change, to assume that its absence means health. But there is a long downhill road before this point is reached. At its beginning is the condition of positive health. There is never any question about this rare quality. Persons possessing it stand out by themselves from the host of dull-eyed, sallow, tired, complaining humans who pass as well. Clear and shining of eye, warm and glowing of skin, erect and at ease, these rare beings are alert and mindful of their changing environment and adapt themselves rapidly to it. But positive health means more to me than adequate adaptation to the environment. It means also a rounded development—the maintenance of a proper balance among all our capacities. The moment of its decline should mark the beginning of disease.

This definition of positive health has a significance both physical and mental, if for a moment I may use terms which imply the division of man into two parts. It is a fact that he frequently becomes predominantly physical or mental according to the accidents of inheritance, inherent capacity, or early environment, but I deny the necessity for this. Energy or impulse seeks its outlet along the path of least resistance. In those of robust structure it overcomes the difficulties of the environment by physical means, in those less fortunate it reaches the end in view by mental processes. But who will say that wise direction may not take the matter out of the hands of chance and force impulse to find more outlet, on the one hand, in mental, on the other, in physical activity. After all the only fundamental difference between these two lies in the nature of the obstacle to be overcome.

THE ELEMENTS WHICH MAKE UP POSITIVE HEALTH

If positive health is to be the norm from which all deviation begins we must understand all the elements that contribute to it. Inheritance comes first, and probably foremost among these, not the inheritance of structure but the inheritance of tissue qualities giving resistance to fatigue and infection. This is an endowment almost entirely dependent on the lives of the progenitors with respect to nutrition, sunlight, exercise, and freedom from excessive strain. It may so fortify its

possessor that he easily survives for a long period the adverse circumstances of poor nutrition or accidental infection.

Nutrition follows next in order of importance among the elements that contribute to positive health. The average American eats much more than he needs. The digestion, absorption, combustion and elimination of this excess as heat and waste entail a very considerable burden on his metabolic processes and particularly on his circulation, a burden which after middle life becomes proportionately greater. And the average American selects foods of poor quality. It is particularly rich in degerminated cereals and sugar and dangerously poor in mineral elements, residue and vitamins. In fact his diet in respect of quality is constantly suboptimal. This probably contributes to much of his degenerative disease and certainly makes his children constitutionally inferior.

Sun exposure ranks with inheritance and nutrition among the elements that contribute to positive health. We know definitely that it activates certain chemical compounds in the body so as to give protection against rickets but we are equally sure empirically that it raises the body resistance to fatigue and infection and that it stimulates structural growth. Properly used it may help to overcome both poor inheritance and poor nutrition.

Good body posture and symmetrical muscular development are important elements in positive health that depend largely on preceding inheritance and nutrition. They come naturally through play and competitive games to a rested, properly fed child, whereas fatigue and the drooping attitudes of bad posture come naturally to a tired, badly fed child. Training may gradually restore them but only after rest, proper food and sunshine having first brought the individual to the point where exercise no longer produces undue fatigue.

These five elements of positive health—inheritance, nutrition, sun exposure, body posture and symmetrical muscular power all contribute to the development of a sixth, personality. But this final element, if it is to adapt the individual for the friendly competition of our social system requires on its side certain suitable conditions for growth. The first of these conditions is a mind of at least average ability—a mind sufficiently interested in its environment to find means for releasing the vital energy of the individual with satisfaction to him. If this means can be useful or give happiness to others he lives in harmony, if it disturbs the happiness of others he lives in conflict. The second of these conditions is opportunity of early association with mixed groups of persons so that natural inherent individualism may learn the give and take of community living.

The first of these six elements, inheritance, is in control at the moment of birth but nutrition, sun exposure and the environment formed by the immediate, surrounding group almost immediately assume equal importance. If these are favorable, good posture and muscular power develop with the beginning of physical activity. Youth is thus

the period of integration of these elements into an individual. His health depends on the balance between them. When all have been present to a reasonable degree or when the deficiency of one has been overbalanced by combinations of the others he is in positive health. When many have been absent and especially when the inheritance has been poor he may never achieve positive health and is almost sure to break under the strain of competition.

HOW POSITIVE HEALTH CRITERIA ARE APPLIED

The adoption of this new standard of health will open up an entirely new field for medical practice. The tired, irritable, complaining patients who for so long have had nothing the matter with them will fall naturally into some category between the stage of positive health and that of structural disease. They will be interesting problems for analysis and constructive therapy. Inherited qualities and capacities, early nutrition, environment and training, physical and intellectual equipment, personality characteristics, adjustment to and interest in the environment, habits of eating, sleeping and exercising, will all come up for review. The thing or combination of things that has brought the individual to the point of complaining of his health will be determined. Therapy will be ameliorative or completely corrective depending on the degree to which the various factors are susceptible of modification. And the pallid-faced club woman will be taught to live without a succession of colds, for proper analysis will reveal the various points of strain under which she was breaking. The emphasis in medical practice will be placed on those patients for whom it is still possible to get results and not on the intricacies of structural disease.

POSITIVE HEALTH AND PREVENTIVE MEDICINE

Such criteria for health will also further the development of preventive medicine. Many who consider themselves well will be found lacking when judged by the standards of positive health. With a knowledge of their shortcomings and capacities they will have the opportunity of gradually developing an intelligent choice in the selection of food, the habits of exercise, the development of interests and the selection of environment. The gentleman with the lumbering gait and the sodden appearance will at least be made to understand that degenerative disease, lowered resistance to infection, shortened life span and a gradually diminishing sense of well-being always follow the excesses in which he indulges. He will be told that such living habits will transmit to his children an inheritance in tissue quality which makes them more susceptible to structural disease. An understanding of the personal responsibility of the individual to his body and to his descendants will replace the present querulous attitude of resentment that medicine is unable to cure disease.

NEW HEALTH STANDARDS NOT RAPIDLY ACCEPTED

The change in point of view implied in acceptance of new standards for health will be passively resisted. Medicine emerged through the smoke of

mystery from an age in the dim past when both physician and patient believed in the potency of charms and amulets. And even now the atmosphere is not quite clear. The light of our newer nutrition and our newer psychology has scarcely penetrated the clouds of misinformation and superstition in the air. So much of the murky dimness of our past hangs about us that we still have faith in the magic of prescribing and taking a bottle of colored liquid. Out of this same dim past reaches the arm of tradition. The human mind clings to it for support, resisting change from the security of a scheme which works fairly well. Medicine must learn to walk without leaning too heavily on the past if it is to lead in breaking down resistance to these new standards for health.

APPLICATION TO SELF AND TO THE MEDICAL CURRICULUM

If we are to take our proper place among the leaders of the movement toward positive health we must first apply the new standards to ourselves. Paradoxically enough we devote our lives to telling people how to get well and are often sick ourselves with preventable disease by early middle life, sacrificing health, happiness and even life itself to an ideal of service. This sacrifice is of far less value than the example of fine right living we might set to the world.

To insure the development of this leadership we must have a proper personnel and a new emphasis in the medical schools. Modern education upholds that the teacher must have grace and strength of personality, that he must establish a comradeship with the younger individualities about him—a comradeship founded on mutual respect, on mutual recognition of open-mindedness and of capacity for growth. Modern philosophy maintains that he must inspire not only respect for attainment in some specialized field, but interest in the welfare of humanity and constructive imagination in the application of knowledge to the problems of living. Modern psychology asserts that he must endeavor to develop in his students along with their acquisition of knowledge, a breadth of culture, a freedom of personality and of outlook, a quality of freshness, of vitality, of courage, a capacity to take on the difficulties of life with a sense of advancing toward a glorious adventure. Indeed the possession of these personality characteristics and of these teaching objectives would seem as necessary in modern medical education as distinction in the special field of research. The older method of stamping the ancient pattern of conformity on fresh sensitive material has gone by the board. Rather is there a determination to offer the young the fullest opportunities for the acquisition of experience and for development to fullest capacity. And these modern teachers must interest the student in higher standards of health, in smaller variations from normal, in constructive medicine and

preservation of individual health as well as in diagnosis and pathology. They must discuss the complaining patient who "has nothing the matter with him", as well as the patient with structural disease. They must make ward rounds an opportunity for fuller participation in life as well as a prelude to the operating room. It may be objected that the various courses of the best medical curricula already cover the ground outlined in these suggestions. This is largely true. The answer lies in the demand for a new emphasis in the medical school.

490 Post Street.

DISCUSSION

JAMES L. WHITNEY, M. D. (490 Post Street, San Francisco).—This paper is aimed to correct some of the most serious deficiencies in present medical practice. Nowhere is propaganda more needed—among the laity to bring them to demand and to utilize certain types of medical service, among the profession to induce them to furnish such service. The opposition is human laziness. The average patient wants simple directions, a pill to take, or to have something cut out—to be cured by somebody else, in fact. He resents having the problem passed back to him by being asked to be responsible for good habits of eating, sleep, exercise, work and play. For the doctor too the proposed program would demand that most painful of tasks—really thinking, individualizing his case, treating the whole patient, cutting loose from rules of thumb. It is too easy to prescribe a conventionalized treatment for a concrete and developed disease; too much of a nuisance to find out the functional maladjustments and misuses which have not yet caused tissue change, and to offer each patient an individual program for living. And yet there is a demand for this type of service and there should be a much greater one. The pediatricians are beginning to make a success of it with children. Why should adults not be taught how to get well of "functional" complaints, and so to live that they stay well?

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CHARLES D. LOCKWOOD, M. D. (605 Professional Building, Pasadena).—This vigorous and stimulating paper of Dr. Langstroth's introduces a new note into our medical life. It might be appropriately called a digest of the philosophy of medicine.

Proper emphasis is laid upon the fact that the regular profession has failed to give the benefits of medical knowledge to those suffering from functional diseases and hereditary weaknesses. We are too prone to dismiss such patients with the assurance that there is nothing wrong, and vague instructions as to their manner of life. Many times a sympathetic inquiry into the family history, domestic environment and personal life will open up avenues of helpfulness, that the wise physician can use to the great benefit of the patient. This personal interest and understanding will contribute much to the recovery of patients who have undergone surgical operations and special treatment, as well as those who complain of functional disorders.

Through too great emphasis on specialism, the regular profession has lost contact with the average sick person and in his effort to secure advice at a reasonable price he has turned to the cults. In this way the line of communication between the regular physician and the specialist has been interrupted. We need a class of practitioners to replace the old family physician, who while they recognize the value of specialism, have also the knowledge and confidence necessary to assume the guidance of patients in the ordinary ailments of life.

SPHENOID PATHOLOGY*

FROM THE ROENTGENOLOGISTS' STANDPOINT

By D. G. CLARK, M. D.
Santa Paula

AND

H. J. ULLMANN, M. D.
Santa Barbara

DISCUSSION by John Hunt Shephard, M.D., San Jose;
Howard E. Ruggles, M.D., San Francisco; Philip C.
Means, M.D., Santa Barbara.

THE nasal sinuses are at present probably under suspicion as foci of infection more than any other part of the body. This may be due to the persistent symptoms in patients who have had all other foci investigated and eliminated. Whatever the reason, any method of demonstrating changes in these structures is heartily welcomed by all internists. Most rhinologists will refuse to treat sinuses which have been diagnosed as pathological by the roentgen ray, unless there are also clinical signs of infection. Because of this a great many of our positively diagnosed sinuses were at first turned away by the rhinologists, until some of the internists insisted that they be treated. Much to their surprise, pus was found, and the symptoms subsided under treatment. Gradually most of the men in our community have become convinced that we have an accurate diagnostic aid and accept our reports.

TYPES OF FILMS

In our sinus examinations we take films from three angles: one from Water's position; one from Granger's position; and one lateral. The Granger position is probably the least used, but is, we think, the most important of all. There has been a great deal of controversy as to the reliability of sphenoidal interpretation and of the comparative value of different methods. We shall not go into the comparative merits, as that has been discussed in detail; but in the Granger position we have a very accurate means of demonstrating sphenoidal pathology.

THE GRANGER POSITION

Granger has so thoroughly described his technique¹ and the changes demonstrated, that we shall mention only some of the points we have found to be of importance. Granger's reports have included: work on dried skulls,^{1,2} rhinological investigation to check his interpretations,³ and comparative value of the sphenoid technique.⁴ The interpretation depends on changes seen in the Granger line, a line formed by the roof of the sphenoids, and the sphenoidal density beneath it. Using Granger's 17-degree angle block and the bakelite mask, there is little chance for wrong

* Read before the Radiology Section, California Medical Association, at the Fifty-Sixth Annual Session, April 25-28, 1927.

position regardless of the shape of the individual head. The glabella and alveolar process rests on the mask, with the head inclined downward, and the x-ray directed perpendicular to the table, thus doing away with uncertainty regarding the angle at which to tilt the tube for individual heads. By this method no particular skill is required to duplicate films from the standpoint of position. It is quite essential that the head be inclined downward so that if pus is present it will flow toward the roof of the sinus.

The changes found and their significance are as follows:

Empyema—Granger line absent. Density equal or slightly increased (reduced).

Polypoid—Granger line absent. Density increased.

Vacuum—Granger line lessened. Density equal or increased.

Hyperplasia—Granger line lessened and broadened. Density equal or slightly increased.

Osteoplasia—Granger line broadened but not lessened. Density slightly increased.

COMMENT

After examining large numbers of films taken by this method our reaction is that a normal sphenoid is a rare condition. Following the patients' histories we are convinced that we were not reporting pathology in patients without infection. In one series of patients, whose symptoms suggested focal infection, all the usual tests were done, including roentgenograms of the sinuses. A large percentage of positive infection was reported, sphenoidal pathology leading with about 90 per cent of the cases. Since few of these patients had evident clinical sinusitis, there was hesitancy in treating them. At first only the empyemas were treated. After getting improvement in this group the rest were treated with gratifying results to the patients. When we say treatment we do not necessarily mean operation, as most of them were being treated conservatively. Although we no longer argue in our community about findings it is not uncommon to have our positively diagnosed patients refused treatment in other cities, the rhinologists telling the patients they have no sinus disease. However, some of these patients have been treated by other men with relief of symptoms. To conclude, in our experience there seem to be a large number of diseased sphenoids which are being overlooked that would be recognized if this roentgen technique were more widely used.

SUMMARY

Sinus infection is a frequent source of focal infection in cases of systemic disturbances.

We believe the sphenoidal sinuses are commonly involved with or without changes in the other sinuses, and that by the Granger technique the

sphenoidal changes may be very accurately demonstrated by the roentgen ray.

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DISCUSSION

JOHN HUNT SHEPHARD, M.D. (Twohy Building, San Jose)—The locating of foci of infection is one of the most difficult problems in diagnosis. The frequent failure in relieving patients of their symptoms by removal of the tonsils and teeth is justly developing a suspicious public. To advise a patient to undergo a tonsillectomy or have one or more teeth extracted before thoroughly investigating the possibility of all other sources of infection is unjustified, and if we are to retain the confidence of the public we must be more exhaustive in our examinations.

To determine the presence of a chronic infection in the sphenoid and ethmoid sinuses is one of our most difficult problems, and though the x-ray has been employed as an aid in this field for several years, most clinicians feel that it has been of limited value. In 1923 Granger advocated a new roentgenological technique based upon an exhaustive study of dried skulls, the sinuses of which he filled with media of various densities. It has the great advantage of being simple and easily mastered by any technician. Repeated films can be made for comparison at exactly the same angles. The line at which the shadow of the petrous portion of the temporal bone traverses the orbit tells instantly whether or not the film is reliable for study. When the films are interpreted according to Granger's instruction much valuable information is obtained. On various occasions we have requested our consulting rhinologist to thoroughly shrink the nasal mucosa and apply relatively strong suction which has demonstrated sphenoidal or ethmoidal sinus infection where a prior nasal examination had been reported negative. For the past year we have used the Granger technique on all patients presenting the symptoms of "foci of infection," and in a few cases have been rewarded by locating a focus of infection which otherwise would have been missed.

I believe that if every rhinologist would thoroughly familiarize himself with roentgenograms of the sphenoid and ethmoid sinuses made by the Granger technique he would appreciate its value and require that it be routinely used in all doubtful cases.

HOWARD E. RUGGLES, M.D. (384 Post Street, San Francisco)—There is no doubt that the Granger technique for visualization of the roof of the sphenoid is of great assistance at times. It gives a practically

unobstructed projection of the upper portion of the sinus, the exact amount of clearance depending upon the size and shape of the sinus and the shape of the skull base. It should be one of the routine positions in sinus examinations.

All sinus films must be of the highest technical equality and this is of particular importance in the Granger position. The use of fine focus tubes and accurate fixation of the patient are essential.

The authors have well stressed the importance of adequate x-ray studies in suspected sinus disease. Unfortunately we have not reached the point where the roentgenologist and the rhinologist can agree upon the diagnosis in a certain percentage of cases, but careful studies of this sort and better teamwork will help to reduce their number as time goes on.

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PHILIP C. MEANS, M.D. (103 East Micheltorena Street, Santa Barbara)—In the treatment of disease under institutional care and in organizations such as the army and navy the obtaining of help furnished by the laboratories is insisted on. Errors of judgment may be overlooked, but not failure to use all available means in diagnosis and consultation. The careful physician should be and usually is anxious to do this. It adds to the cost of sickness, but there are few communities where it is not available at reasonable price if the financial conditions are fairly set forth. Carefully selected it is of mutual value to patient and his physician.

I do not feel we are in much danger of overestimating the importance of focal infection in constitutional disease. Our best men find and insist on the removal of suspicious tonsils and devitalized teeth. But unless pus was profuse in the nose or sinus symptoms were pronounced the possibility of a sinus focus has been frequently overlooked. Chronic postnasal catarrh is quite frequent. One might almost be tempted to call it nearly universal. Some people keep quite well in spite of it, and it probably may be disregarded. But in lowered vitality, in the presence of heart or kidney or other constitutional disease, where treatment is slow in producing results, it may be the one factor that is preventing improvement.

Teamwork between the attending man and the specialist is essential. Diagnosis of sinus disease by examination, transillumination and x-ray has become fairly sure with the exception of the sphenoid. Its location has made these methods uncertain. With the introduction of the Granger method great help has resulted. It does not sound logical. We cannot at first realize that the thickening, broadening or fading of a line of shadow can mean what he claims, but I am convinced that if we will accept it and use it and check up on results in examination and treatment we will be convinced. I am now accepting the findings of the roentgenologists whom I know have the proper method and skill and discounting my inability at times to corroborate them on examination. And by going ahead and treating such cases I have many times helped the patient to get rid of a toxemia that was holding him back and blocking his doctor's efforts. I may not cure the local condition, but I relieve him of the excess weight of the load that was overbalancing his recuperative powers.

From this experience I feel that I cannot too strongly urge reliance on the Granger technique in these cases. I am satisfied with nothing less and insist on its use.

The physician must win the good will of the public. However skillful your science, however dignified your conduct, you cannot impart to advantage the good within you unless you hold the confidence of your people. You must understand man and the public's state of mind. You who are interested in life, who must listen to naked truth, who must hear the confession of shameful sin, need character and gentleness. Avoid gossip. Silence is better. Nor need I warn you against gambling, drunkenness, sexual excess and anxiety for fame.—Fushi Ikai No Ryaku.

PERIFOCAL INFILTRATION IN JUVENILE TUBERCULOSIS*

WITH CASE REPORTS

By ERNST WOLFF, M. D.
San Francisco

DISCUSSION by Lloyd B. Dickey, M.D., San Francisco; Max Rothschild, M.D., San Francisco; Isabella M. Clinton, M.D., San Francisco.

IN 1916 Ranke¹ advanced a modern classification of tuberculous infection based on a large series of clinical and pathological studies. He recognized three stages of the infection: (1) primary infection, (2) generalization, and (3) isolated organ involvement. Certain cases, however, show more involvement of the lung parenchyma than is usually found in Ranke's first and second stages, but in contrast with the third stage, a surprising tendency to heal. This process is explained not as a dissemination of tubercle bacilli, but as due to the cellular reaction around the central focus containing the tubercle bacilli.

PERIFOCAL INFILTRATION

The bacillus of tuberculosis is never found in this zone, the tissues being saturated with serum and lymphocytes. To describe this peculiar condition the term "perifocal infiltration" is used. Today it is generally believed (Tendeloo²) that toxic products diffusing from the bacillus cause the special tissue reaction; while only the presence of the bacillus can lead to tissue destruction as happens in the focus. Perifocal infiltration, therefore, is a relatively benign tuberculous lung involvement.

In reviewing the literature concerning benign tuberculosis before the days of x-ray, only the most extensive lung involvement was diagnosed. This was the splenic pneumonia of Grancher. With the development of x-ray and tuberculin tests, benign forms were recognized by Eliasberg³ (epituberculosis) and Engel⁴ (paratuberculosis). Less extensive forms were described by Sluka⁵ as "hilum tuberculosis," when the process was in continuity with the hilum; while Wessler⁶ used the term "hilum pneumonia" when the focus was in the lung tissue separate from enlarged mediastinal glands.

SYMPTOMS AND SIGNS

The onset may be acute, with high fever and symptoms of pneumonia, or insidious with slight subfebrile temperature, sometimes even without cough. Measles, pertussis or trivial infections of the respiratory passages may have preceded the onset.

Physical examinations reveal either consonant râles, which disappear with the progress of the infiltration, or dullness with diminished breathing. Sometimes there may be diminished bronchial

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*Read before the Pediatric Section, California Medical Association, at its Fifty-Sixth Annual Meeting, April 25-28, 1927.

breathing in an area which extends beyond the border of the lobe. The area of infiltration may vary in size while the patient is under continued observation. Râles are present in only a small percentage of cases. The pleura is sometimes involved, but the exudate is small and does not dominate the clinical picture. Children with extensive objective findings often have few symptoms of discomfort. The fever, if present, soon subsides. The general development of the child is not impaired. Though bacilli are rarely found in the sputum, their presence does not affect the favorable course of the local infiltration. X-ray shows diffuse dark shadows even involving the whole lung field of one side. These shadows disappear gradually after weeks, months or years. In later x-ray graphs we detect signs of fibrous change or increased vascularity. There may be small calcified areas in the center of the previous process.

SPECIFICITY

Various observers (Langer⁷ and Redecker⁸) noted the appearance or reappearance of these infiltrations following tuberculin reactions. In all children with perifocal infiltration a very marked skin reaction to tuberculin is seen. In 90 per cent of these cases of benign tuberculous lung infiltration, recurring superinfections occur through contact with open tuberculosis. A destructive lung process may appear on the same side or the opposite side before or after resorption of the benign infiltration.

DIFFERENTIAL DIAGNOSIS

As for the lesser forms, differential diagnosis is made by epidemiological and immunological considerations, in conjunction with the x-ray picture.

In the more extensive forms, clinical findings facilitate the diagnosis. The onset of chronic non-tuberculous pneumonia is revealed by more acute lung symptoms, accompanied by fever which usually remains high for several weeks. In these cases the lower lobes are usually affected. The final results of chronic pneumonia after definite tissue changes have occurred are usually organization and fibrosis associated with persistent signs of consolidation. Often the differential diagnosis of benign lung infiltration from destructive tuberculous lung processes can only be made after a certain period of observation. Gelatinous infiltration, which may give similar signs, undergoes caseous metamorphosis within several weeks but not later than three months after onset, and is always associated with increasing marasmus.

CASE REPORTS

In connection with the foregoing discussion two case reports may be of interest.

CASE 1.—Moses O., Japanese boy, age three and one-half years, lived in the same house with a man suffering from pulmonary tuberculosis. Two children of this man had recently died with tuberculous meningitis. The patient and his sister had measles the year previous and bronchopneumonia two months before observation. The sister developed tuberculous meningitis subsequent to the bronchopneumonia and died.

The boy felt well until two days before entry, when he developed an afternoon temperature of septic type. Cough was only occasionally present. No subjective discomfort and no complaints were noted.

Physical Examination.—Patient was of medium physical development, weight 15.6 kilograms. He had carious teeth, and injected and enlarged tonsils. Thorax showed signs of rickets. Lungs showed percussion dullness over right subscapular area extending to anterior axillary line. Auscultation: markedly diminished breathing over dull area, also considerably diminished over the entire right lung, anteriorly and posteriorly; no râles. Other organs were normal.

Temperature normal; respiration 20 to 23 per minute. Blood: hemoglobin, 55 per cent; red blood cells, 4,500,000; white blood cells, 12,550, with polymorphonuclears 79 per cent; slight secondary anemia. Tuberculin reaction: marked induration and erythema after twenty-four to forty-eight hours. X-ray examination: On November 30, 1926, showed marked enlargement of the mediastinal glands. Circular shadow of four centimeters diameter in the right inferior lobe in which three areas the size of a pea of increased density with indistinct outlines could be distinguished. Two weeks later the x-ray picture showed the round shadow at the right base increased, uniformly dark and more sharply outlined than in the first picture.

Re-examination on January 18, 1927, showed dullness in axilla diminished. Breath sounds more equal on both sides, anteriorly, marked diminution on the right. In the x-ray examination the shadow had almost completely disappeared. Development since discharge has been normal.

Comment.—This was a runabout child with a definite exposure to tuberculosis. After two days of illness, with septic temperature and its drop to normal, the child developed a lung process, which gave localized clinical symptoms of infiltration without râles, and showed a round shadow in the x-ray picture. There was a diminution of clinical symptoms and disappearance of the shadow after a month and a half. This round form of shadow is seen only in lung abscess, neoplasm or echinococcus. None of these affections fit the clinical findings nor the quick disappearance of the shadow. The lack of râles and the increasing pathologic findings in the x-ray picture, fourteen days after the temperature became normal are sufficient to exclude the diagnosis of acute or sub-acute pneumonia.

The sister of the patient (in analogy to a case reported by Armand-Delille⁹) had developed generalized tuberculosis while living under the same epidemiological conditions, in contact with a case of open tuberculosis. Marked enlargement of the mediastinal glands and strong tuberculin reaction were found. All these facts taken together strongly support the assumption that the underlying process should be regarded as perifocal infiltration in juvenile tuberculosis.

CASE 2.—Helen H., age twelve years, American, had no history of previous contact. She had measles at the age of two years, influenza when five years of age, pertussis at six years—all of normal duration and without sequelae. She was admitted to the Children's Chest Clinic on September 10, 1925, with a complaint of a dry hacking cough of two weeks' duration. No temperature and no sputum.

Physical Examination.—Showed a decidedly undernourished girl, weighing 59½ pounds (ideal 68 pounds), but alert and energetic. Lung examination: marked dullness at the left base posteriorly. Vocal and tactile fremitus decreased over the left upper lobe and at the left base. Bronchovesicular breathing over

the area of dullness was heard without râles. The D'Espine's sign was elicited to the eighth dorsal vertebra. The tuberculin reaction was strongly positive. The x-ray revealed an area of infiltration extending outward from the left hilum into the region of the interlobar septum. Increased bronchial markings in both upper lobes, particularly the left lobe; diaphragm on the left higher than on the right side. Diagnosis (of roentgenologist): old peribronchial tuberculosis and interlobar pleurisy.

During the following eighteen days the cough gradually disappeared and the girl gained four pounds in weight. Twelve months later she was only three pounds underweight and had no symptoms. Re-examination two years after entry; the child looked well and had the ideal weight. Over the left lung paravertebral dullness between the second and fourth thoracic vertebrae was noted. The left lower border was less movable and there was limited expansion on the left side.

X-ray findings: Increased density extending from the left hilum has entirely disappeared since 1925. There is nothing that would suggest tuberculosis at the present time. Small calcified glands are seen on the side of the previous infiltration. Left bronchopulmonary glands are sharply outlined and calcified.

Comment.—There is no connection between the previous infectious diseases and the observed lung condition. The beginning of the infiltrative process was insidious without systemic symptoms. Malnutrition was the only sign of disease. The physical findings pointed to a localized infiltration with functional impairment of the left diaphragm. The unproductive cough was due very likely to irritation of the pleura mediastinalis. After two years the pathologic shadow was gone; and only small areas of calcification were still seen. The small calcified bronchial glands had no connection with the calcified nodules in the lung tissue. The position of the diaphragm was normal. Since we had no signs of adhesions the remaining impairment of diaphragmatic function might have been due to the involvement of the phrenic nerve within the pathologic hilum process.

Concerning the differential diagnosis there was no need in this case to consider chronic unresolved pneumonia because of the negative past history. Two nonspecific conditions only recently described must be included. In the peribronchial pulmonary infiltration of Heiman and Cohen,¹⁰ râles are likewise absent, divided bronchial breathing and bronchophony, but the x-ray shows either fine mottling or only accentuation of markings, which are sometimes difficult to interpret as pathologic changes. In the subacute pulmonary infiltration of Peshkin¹¹ definite shadows in the x-ray picture are seen too, but physical signs of bronchitis are a constant feature, which was not true in this case under discussion.

No definite contact was known. The tuberculin reaction was strongly positive. The diagnosis of a specific lung condition could be based only on the exclusion of all other possibilities. This triangular shadow, however, the so-called Sluka triangle on the hilum, with the apex pointing to the lung, is described in the literature from various

clinics as typical hilum lung infiltration in connection with active hilum tuberculosis.

CONCLUSIONS

1. Perifocal infiltrations are reparable, inflammatory processes around tuberculous foci in lung tissue or glands.
2. The new methods of medical analysis, mainly x-ray, the results of immunology and the following up of tuberculous contact cases in special clinics revealed these benign processes and threw a new light upon the prognosis of certain forms of juvenile tuberculosis.
3. In many cases of active tuberculosis in children, areas of inflammation are found around specific foci of lung tissue or bronchial glands. The foci contain the *B. tuberculosis* and the specific reaction products of the body. Only these nuclei undergo destruction and calcification. The perifocal inflammation is resorbed like any other nonspecific inflammatory process.

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DISCUSSION

LLOYD B. DICKEY, M. D. (Stanford University Medical School, San Francisco).—The reason that Ranke's classification has not as yet been generally accepted in this country is probably because of the fact that there is in it no proper place for cases such as Doctor Wolff discusses.

From the standpoint of the clinician it is desirable to classify cases of tuberculous infection early. It is especially desirable to know early, if possible, what course a tuberculous infection will take in an infant. During the course of our work at the Stanford children's clinic, pursued with the help of the San Francisco Tuberculosis Association, we have seen a considerable number of infants and young children with definite histories of intimate exposures, with markedly positive tuberculin reactions, some with symptoms and signs, and some where these were minimal. Those without signs and symptoms did not develop later, evidence of tuberculous disease. Many of those showing symptoms and signs, and which we might classify as "perifocal infiltrations," recover completely. It would be a source of great satisfaction if we could prognosticate these cases without having to wait a year or more to determine what the outcome will be. This may often be done, as Doctor Wolff suggests, by the intensive follow-up of tuberculous contact cases in special clinics. It is much more important to make an intensive study of a suspected tuberculous infant for several weeks, such studies to include temperature recordings and serial roentgenological observations, than it is to make a casual study extending over a period of a year. It is only by an intensive study that

we can determine between a benign and a progressive tuberculous infection. This determination, as early as possible, is important for the child, for the family, and for the community.

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MAX ROTHSCHILD, M. D. (384 Post Street, San Francisco).—Perifocal infiltration is frequently found in pulmonary tuberculosis of children as well as of adults. In cases of this type which have come to our notice, the subjective symptoms frequently do not seem to coincide with our findings on examination—we hear moist râles over a rather large area, and one would assume that such patients should present, from a clinical standpoint, a good deal more pathology than they really do. When such patients are put at rest this large area of infiltration disappears quickly and recovery is unusually rapid.

The findings on auscultation remind one very much of the focal reactions which we notice after injections of old tuberculin, when these injections are given either for immune biological and diagnostic purposes or in a faulty manner for therapeutical purposes (such reactions should, of course, be strictly avoided). For these reasons the paper of Doctor Wolff is of great practical interest; but whenever these perifocal infiltrations are found and are due to a tuberculous involvement, then I always consider them as not belonging to the "Primary Complex" group. I have always doubted the practicability of Ranke's classification. When one considers only the state of immunity or the way of propagation of infection, then it is of value, but there is danger that Ranke's classification could easily be confused with the clinical classification of the three stages of pulmonary tuberculosis, which of course differs most definitely from Ranke's classification of the pathology present. When the tubercle bacillus has passed the regional lymph nodes and has invaded the lung parenchyma we might consider this clinically still an incipient case of the first class, while, according to Ranke, it belongs to the advanced group. This division into "stages" has led to confusion, as it depends too largely upon the personal equation of the examining physician. Now if we adopt Ranke's classification it could easily be possible that a greater confusion might be the result, unless one would be most careful in one's statements regarding classification.

Doctor Wolff is very right in emphasizing that it is not always easy to differentiate between tuberculous and other infections when these perifocal infiltrations are found in children. X-ray, as well as skin tests, are not always decisive factors. Both are at times misleading, and one has to bear in mind always the possibility of an unusually light pneumonic condition and not a specific infection, when these perifocal infiltrations are encountered in children, particularly those that clear up very rapidly.

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ISABELLA M. CLINTON, M. D. (Stanford University Medical School, San Francisco).—Doctor Wolff has called a much needed attention to the fact, that all infiltrations about a tuberculous focus are not necessarily of the tissue-destructive type. Only too often this allergic phenomenon when found in a tuberculous individual is the sole indication for pneumothorax therapy, instigated on the theory that unless the consolidated lung is compressed it will caseate.

We have had under observation at the San Francisco Hospital chest clinic a family of five children, all tuberculosis contacts who represent a perfect nest of these "perifocal infiltrations," and who demonstrate just this point that Doctor Wolff has emphasized. One child had an apical consolidation, another a dense basal infiltration (this latter with positive sputum), and the remaining three showed marked hilus involvement. Yet with all this pathology these children have remained well, and for one year, while under clinical observation alone, they persistently remained overweight in spite of poor home control, huge tonsils and extensive dental caries. Their chest pathology, identified chiefly by x-ray, is gradually simmering down

to fibrosis, calcification, peribronchial scarring and hilus thickening.

Another point in Doctor Wolff's paper which I think is of great importance is that these perifocal reactions clear like "any other nonspecific inflammatory process." These scars that are later found within the lung (excepting calcification) have not been proven to be due entirely to tuberculosis, and the association between chronic upper respiratory infection, hilus thickening and peribronchial scarring is seen too often to be disregarded. The San Francisco Hospital chest clinic has a splendid opportunity to see many of these cases, for in San Francisco there is a great deal of sinusitis. Because of the similarity of the symptoms of sinusitis to tuberculosis, often children are brought to the clinic as actively tuberculous, and so diagnosed, because of a chest film that shows hilus thickening and peribronchial scarring; but by clearing the upper respiratory infection their symptoms disappear. We have yet to see whether the scarring is permanent.

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DOCTOR WOLFF (closing).—Juvenile lung tuberculosis is again a new field of clinical investigation, owing to Ranke. Concerning Doctor Dickey's remarks, I wish to emphasize the point, that the mentioned cases clearly belong to Ranke's secondary stage, inasmuch as destructive and fibrotic processes are negligible. Doctor Rothschild's fear of impending confusion, if we adopt Ranke's classification, does not seem to be justified as far as juvenile tuberculosis is concerned. Ranke's secondary stage of tuberculosis infection of the human organism is not "advanced" in the sense of Turban Gerhardt's classification of pulmonary tuberculosis.

Turban Gerhardt's classification applied upon the mentioned perifocal infiltrations, involving a whole lobe with discharge of bacilli, leads to the possibility of gross error concerning the good prognosis of those cases.

ANESTHESIA IN OBSTETRICS*

By FRANK W. LYNCH, M. D.
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THERE have been remarkable advances during the past twenty years of surgery. Operations performed a generation ago with high mortality are now done throughout this country with so few primary deaths that it almost seems incredible. This miraculous improvement is due to a better appreciation of the pathologic physiology of the body in general, a tremendous improvement in operative technique, and an almost unbelievable improvement in anesthesia.

In 1909 the American Gynecologic Society held a symposium on anesthesia. The discussion clearly shows that at that time anesthetics were given by interns in all of the larger hospitals in America; that even in London and New York there were few physicians who were practicing anesthesia as a specialty; and that all research in anesthesia was conducted on animals by men who were not primarily interested in human physiology and pathology.

During the intervening years the medical world has learned much concerning the action of anesthetics, and the changes that it causes in the body. We have been forced to revise many of our former views concerning ether, have seen new anesthetics developed, have learned why many

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* Read before the Anesthesiology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

types of patients are bad risks for anesthesia, and have made much progress generally. Yet the profession as a whole has not yet appreciated that the pregnant woman as a class is never so good a risk for prolonged anesthesia as the very same woman in the nonpregnant condition because of the varying degree of acidosis that invariably attends the pregnant state, nor are such statements made in obstetrics textbooks.

METABOLIC CHANGES IN PREGNANCY

The French were not far wrong when they described pregnancy as the "delicate state." Every investigation of the blood during pregnancy shows a metabolic balance that is not quite normal. The CO_2 tension is normally low and is reduced very much more in all of the so-called toxemias. Glycogen is stored in large amounts during normal pregnancy, yet there is much evidence to suggest that this is quite as much to provide pabulum for the fetal cells as to protect against a threatening acidosis. Certain it is that recent investigation shows that both fetal cells and cancer need much glycogen for growth and have much less need of oxygen than does normal and fully developed tissue.

Even if glycogen is stored normally in pregnancy to combat acidosis, it often fails utterly to do so in the presence of a moderately long anesthetic on a patient with nausea and vomiting of pregnancy. There are many known examples where such individuals have passed from a mild acidosis into a fatal fulminating toxemia as a result of one hour's ether given to permit of some surgical procedure in an acute abdomen.

Blood studies on dogs show definite metabolic changes from normal as a result of anesthesia. Stander, in 1927, found that the CO_2 tension is considerably reduced by a half-hour's anesthesia of ether, chloroform, nitrous oxid or ethylene; the changes from ether being the most marked and those from ethylene being the slightest. Coincidentally there is a marked hyperglycemia, an increase in lactic acid, a slight increase in inorganic phosphates, and very little change in the nonprotein and urea nitrogen. These changes are almost identical with those found in the blood of women in eclampsia. While there may be criticism of these findings since asphyxia may also cause similar results and may have had an influence on the picture, there is no doubt but that the blood is changed by our inhalation anesthesia.

It might be argued again that the hyperglycemia in these cases is nature's method to combat this acidosis. Yet, while so doing, we must admit our scanty knowledge of the action of the enzymes that facilitate such a process. Enzymes are readily killed. It is not yet known whether those permitting the burning of sugar can change their accustomed habits and work in a different PH environment. We can say little more at present than that the blood changes just described undoubtedly indicate liver changes.

For these reasons we believe that surgery in pregnancy should be restricted to the minimum; performed as rapidly as is consistent with safety,

and be done under morphin and local anesthesia whenever possible. Certain it is we should limit inhalation anesthetics to nitrous oxid-oxygen or ethylene in any but cases of short duration.

ABDOMINAL COMPLICATIONS DURING PREGNANCY

Fortunately nearly any abdominal complication demanding surgical interference during pregnancy can be operated without need of much abdominal relaxation. The offending structures usually can be brought up into the wound and there treated, and it is not often necessary to work in the depths of the pelvis or abdomen. Appendices and twisted ovarian cysts may be removed under local anesthesia. Personally I feel that the CO_2 tension in the blood should be known before resorting to inhalation anesthesia during pregnancy, since few may judge how long an anesthesia may be necessary until after the abdomen has been opened and the pathological condition has been investigated. An unfortunate experience with a difficult appendix years ago made me much afraid of ether. The patient was five months pregnant, was vomiting several times daily and came out from the anesthetic to pass two days later, in spite of glucose injections, into a fatal toxemia. I have seen also a similar case in consultation. Local anesthesia can always be followed up with nitrous oxid and oxygen or ethylene oxygen if it proves necessary. We must keep in mind that abdominal complications during pregnancy cause a blood picture different from that seen when an operation is designed merely to deliver at full term, because metabolic disturbances invariably follow the gastro-intestinal upsets which form part of the symptomatology of the acute abdomen.

ABORTION

Therapeutic abortion usually is not a long operation although it can be done easiest when there is complete muscular relaxation. There is much actual danger of perforating the uterus if the patient is tense or struggles and is not under fairly deep anesthesia. They bleed more freely under gas and oxygen or ethylene oxygen than they do under ether for which reason I prefer the latter if the patient is in good condition. Yet in event the indication for abortion is uncontrollable vomiting, now fortunately a rare condition, or pulmonary tuberculosis, or diabetes, inhalation anesthesia of no type is permissible. Infiltration of the cervical edges and parametrial bases with one-half of one per cent novocain or sacral anesthesia is practical and much more safe.

CESAREAN SECTION

There is no doubt that ether passes over to the child and may cause fetal death. I know of many such instances. Every surgeon who has used both ether and nitrous oxid-oxygen for cesarean has been forced to admit the fact that the child born under ether very often has to be resuscitated, while the one born under gas and oxygen usually cries as soon as born. This statement holds true in cases which have not been given morphin before beginning the anesthesia. Morphine should

not be given before the delivery of the child by cesarean since occasionally it passes over to the fetus and inhibits respiration. I have seen several fetal deaths which must be attributed entirely to morphin. Some, as Harrar in New York, do not admit this possibility, yet to me a few positive cases are of more weight than many hundred negative ones. Personally I have not used morphin or ether for more than twenty years in cesareans. I have had no experience with ethylene in such cases and by choice use nitrous oxid-oxygen. Heaney, De Lee, and others report increased bleeding with ethylene during this operation although it is not sufficiently great to constitute a complication. In patients with cardiac or nephritic complications, the operation should be done under local anesthesia. This method has been known for more than thirty years and has been described and redescribed intermittently since the late 90's. It again has a wide vogue although personally I never use it without definite indication. It always seems brutal to me unless the patient's mind has been dulled by scopolamin or morphin, which drugs I feel should not be given before this operation.

VERSIONS AND FORCEPS

Version is difficult to do under spinal or nitrous oxid-oxygen anesthesia, which seldom give adequate muscular relaxation. Even ethylene may not give the desired results and ether is often necessary. There is comparatively little danger from ether at such a time since the operation is short. Moreover versions are unusual in the experience of most well-trained obstetricians. Forceps can be used equally well with the patient under nitrous oxid or ethylene oxygen or lumbar-sacral anesthesia. The latter is ideal in event of serious lung conditions. If nitrous oxid-oxygen is used the patient may be allowed to come out of deep anesthesia and assist in the delivery while under analgesia by efforts at expulsion after the forceps application.

ANALGESIA AND ANESTHESIA IN NORMAL LABOR

Most women of the present day desire protection from the pains of labor and there are many methods in common usage. None of these are entirely free from objection.

Ever since I was a house officer in obstetrics I have been interested in this problem and have had practical experience with all of the various methods. My own opinion is that it is not a simple problem and is even now very far from a proper solution. It is one thing to control the pains in the second stage and quite another matter to control the pain in an entire labor. There is no doubt but that pain during the second stage of labor can be controlled fairly well in nearly all women by any of our inhalation anesthetics given to produce analgesia and not surgical anesthesia. Some of us, however, are inclined to forget how much nature does to help the woman during this stage. Her rapid short respirations no less than her straining and bearing down have a marked

effect in reducing the pain accompanying the forceful contractions.

Chloroform or *ether* may be used *a la reine* safely for a few pains, but if continued for an hour or more they are most likely to be dangerous. Both drugs impair the efficiency of the uterine contractions and favor postpartum hemorrhage. I have never been able to subscribe to the belief that pregnancy makes a woman immune to the well-known dangers of chloroform. An experience of several thousand confinements in which the drug was used has led me to the opposite conclusion. I feel that the advocates of chloroform overlook the fact that only a dram or two of the drug is usually given, a dose so small that it is of comparatively little consequence. Surgical anesthesia with chloroform is, in my opinion, absolutely indefensible in view of the blood and liver changes shown by countless laboratory experiments confirmed by abundant clinical observations. Personally I know of several deaths following surgical anesthesia with chloroform which can be attributed to the drug. For this reason I have never used chloroform since entering private practice.

Nitrous oxid-oxygen has proved a true blessing to many thousands of parturient women. It can be used, I believe, with relative safety for a period of about two hours if given in analgesic doses and only during the contractions. A small amount of the gases are actually given by this method, not more than would be used in twenty minutes of surgical anesthesia. The proper method of administering the gas is most arduous. The physician should give the anesthetic before each contraction becomes painful. Otherwise the patient passes into analgesia with memory of pain and will insist that she has had no relief. It is important, also, to have the patient in the proper degree of analgesia. Usually too much gas is given. Patients must learn how to take it. Multipara learn most quickly. I seldom see the drug well given. Yet in spite of all of the above the method has proved of greatest value and is relatively free from objection. The uterine contractions are rarely reduced in force; more often they are stimulated. The anesthesia is not long stored in the body. For practical purposes we may say that the drug may be recalled from the body by taking off the mask in event of difficulty.

Personally I have had no experience with *ethylene* in obstetrics. My delivery rooms do not permit of giving it with safety since there is a burner in the preparation room but a short distance from the delivery room. Even were the physical arrangements better adapted for the purpose I would not be interested in using it since many of the explosions reported have occurred while ethylene was intermittently given. It is our business, moreover, to teach students to give anesthetics during delivery. Ethylene is not a drug to put in hands that have not had much training. There is no doubt that the proper degree of analgesia can be secured with smaller amounts of ethylene than with nitrous oxid-oxygen: also that larger amounts of oxygen can be used with ethy-

lene. Yet nitrous oxid and oxygen have been shown to be adequate for the purpose: there is no need of substituting a drug which may be found to be dangerous until it has been proved to be of greater value.

The head will pass painlessly over a perineum which has been infiltrated with a local anesthesia. The uterine contractions remain painful and the anesthetic often wears off before it is time to repair the perineum. *Lumbar or sacral anesthesia* will take away such pains, yet neither are suitable for routine administration. This anesthesia seldom lasts for more than an hour and neither method is absolutely free from danger.

There is no doubt, I believe, that routine analgesia by inhalations of nitrous oxid-oxygen during the second stage is a perfectly rational procedure. The conduct of the first stage, however, is an entirely different matter. I am not at all convinced of the safety of our present-day methods of first-stage analgesias, since none have been devised that do not prolong labor. In the last analysis forceful contractions are absolutely necessary for the success of labor. I have seen many tragedies in obstetrics, resulting from drugs which reduced the strength of the uterine contractions and which could not be recalled after once being given. One, a multipara, was given twilight sleep, which greatly prolonged her labor. The patient's general condition became such that the physician was induced to use bags to hurry up labor. He applied forceps two hours after the dilatation of the cervix and more than twenty-four hours after the onset of labor. The head was not engaged and the attendant could not deliver. Another young physician did a pubiotomy, but could not deliver until after craniotomy. The patient had spontaneously expelled a ten-pound baby in a former labor. A bad result with the pubiotomy kept the patient a month in the hospital. Many of the high-forceps cases in my service have been done on women exhausted by a greatly prolonged labor who had analgesia drugs given routinely early in their labor. In these cases strong forceful contractions were absolutely necessary for the success of their labors.

On the other hand, I know of many cases where women should have had protection from pain from the very start of labor. The fact that it was not given may have changed their attitude toward life for a very considerable period.

At the present time we select our cases carefully for drugs given early in labor and do not attempt it as an invariable routine. The woman should be in good condition and well prepared by careful prenatal care. There should be a proper relation between passage and passages, and the head should be in an anterior position unless it lies deep in the pelvis.

There seems to be much evidence that twilight sleep, the Gwathmey method, heroin, chloral and dial facilitate the dilatation of the cervix. For the last few years I have used the Gwathmey with some modifications and have discarded twi-

light sleep because it was less certain in action, carried more fetal risk and entailed more operative interference in our hands than the newer method. Dial has proved a good substitute for morphin and has been employed in a considerable series. My experience indicates that the Gwathmey principles reduce or abolish pain in 85 per cent of cases. It does, however, prolong labor. This must be expected, since the method depends largely upon ether for an analgesia of long duration and ether is ether no matter how it is given. Forceps were necessary to complete labor in 16 per cent of Gwathmey cases, in contrast with 10 per cent forceps cases in 2316 labors that had only nitrous oxid-oxygen as a second-stage analgesia. It does not seem reasonable that Gwathmey can ever be developed to take care of 100 per cent of cases. It takes three hours for the method to have its fullest action, and there are always women who deliver themselves before this period.

There is also some small chance of danger to the child from the morphin or possibly the quinin. For these reasons, we are using dial instead of morphin. While I have never seen a fetal death that could be attributed to the method, we have had many cases that required rather vigorous resuscitation methods which we never use without compelling indications. The innocuousness of quinin in labor is not yet proved although the risk to the fetus is probably very small. Yet quinin is necessary to strengthen the contractions which have been reduced in strength by the ether.

Our experience with allonal as a routine procedure is not favorable. It retards labor. The woman sleeps between pains and the contractions are not forceful.

The repair of the perineum is a surgical procedure. Routinely we use infiltration anesthesia which has proved perfectly satisfactory. We do not hesitate to use ether for a short period if the woman has not had an exhausting and long labor.

CONCLUSIONS

1. Metabolic changes normally present in pregnancy make the patient a worse anesthetic risk for abdominal surgery than she would be in a nonpregnant condition.
2. There is a wide field during pregnancy and labor for local anesthesia.
3. Chloroform has no place in obstetrical anesthesia except for a comparatively few minutes while the child is passing the perineum.
4. Ether should be given only when it is necessary to secure marked muscular relaxation, except for a few minutes for obstetrical analgesia.
5. Nitrous oxid-oxygen has proved its value as a relatively safe method for producing an hour or two of obstetric analgesia, and as a good anesthetic during cesareans and forceps extractions.
6. Ethylene oxygen may prove of great value if the dangerous factor of explosion can ever be eliminated.

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PROBLEMS OF PREVENTIVE MEDICINE*

By WILFRED H. KELLOGG, M. D.

Berkeley

DISCUSSION by John L. Pomeroy, M. D., Los Angeles; John J. Sippy, M. D., Stockton; John N. Chain, M. D., Eureka.

THE French essayist, Montaigne, in the seventeenth century wrote, "Death from age is a rare, singular and extraordinary death." When Montaigne made this comment the average length of life was twenty-five years in Europe, as it is today in India. In those countries which, from the standpoint of sanitation are more progressive, the average length of life is now approximately fifty-five years. Yet the observation of Montaigne is still about as true as ever, for the principal saving of life has been at its beginning and not in its later years.

The advancement in modern preventive medicine is so recent that most of the extension in the expectancy of life has been accomplished in the last twenty-five or thirty years. This remarkable progress has followed directly and in consequence of the scientific advancement initiated by Pasteur when he founded the science of bacteriology about sixty years ago.

PRIMITIVE MEDICINE

Since the earliest recorded history the cause of disease has been a great mystery and has been variously attributed to such factors as the wrath of the gods, to possession of the body by demons, to the stars and comets, to the humors of Hippocrates, and to miasmas. Superstition seems to be a basic attribute of the human mind. This is doubtless due to the fact that, in the evolution of the brain, the faculty of thought and the art of expression are in advance of the faculty of reason and the use of logic. Bearing this in mind, we may look more charitably and complacently on the present popularity of electric belts, the so-called magic horse collars, the replacement of dislocated vertebrae and all the various and sundry cure-alls, cults, isms, and pathies. The folklore of primitive man still lingers in the asafetida bag worn about the neck for the prevention of disease; in the efficacy of stump water in the cure of freckles; in the relation of the toad to warts; and in the carrying of a buckeye in the pocket for rheumatism. But our own is not the only period in which man has burst the bonds of superstition and applied a little reason to medical matters, nor is it the only period of sanitary accomplishment.

HISTORICAL SANITATION

In Rome, if you visit the Forum, a guide takes you down a flight of steps to a landing where you can see the flow in the Cloaca Maxima, the great sewer built two thousand seven hundred

years ago and still in use. In Egypt there is a well three hundred feet deep that was dug three thousand years ago, doubtless with the idea of securing pure water. Hippocrates, the father of medicine, who lived five hundred years before Christ, advised the use of boiled water and dry dressings in surgery and taught that the hands and nails of the operator must be cleansed. His writings on epidemic disease, his intelligent use of a few drugs and his three books on hygiene and sanitation are remarkable, when one considers the very recent emergence of Greek medicine from the bonds of superstition. But with the fall of Rome, which had absorbed Greece and adopted her medicine, the knowledge of Hippocrates and of Galen was almost lost; during the Dark Ages superstition resumed sway and practically nothing was added to medical knowledge for a thousand years, till the appearance of Vesalius, Harvey, and later of Jenner. It was not, however, until Pasteur conceived the idea that disease was the result of a process comparable to the fermentation of sugar by yeast and, like it, due to micro-organisms that the cause of communicable disease was demonstrated to be microbial. Since then scientific progress has been most rapid.

EXAMPLES OF PROGRESS

I need not recount the achievements of bacteriology and of protozoology; everybody is familiar with the many important discoveries in the etiology of the infectious diseases. The net results of these discoveries, however, in the control that has been brought about in certain diseases, is a story that is always fresh and that loses nothing of interest by repetition. By way of contrast with the unsolved problems of preventive medicine and by way of encouragement for a continuation of the battle, I will call attention to a few shining examples of accomplishment.

Yellow Fever.—From 1800 to 1879, yellow fever marched up from tropical America, entering the United States every year except two in that period, and from its first appearance in 1702 it entered the United States 112 times. In Philadelphia in 1793 occurred an epidemic comparable with the great plague of London in mortality, in the terror inspired and in the disorganization of society. People shut themselves in their houses, friends avoided one another on the street, the dead were carted to the cemeteries without attendance and terror was universal. In one epidemic in New Orleans there were 29,000 cases and 8000 deaths and in Memphis, 17,600 cases and 5000 deaths. Now, yellow fever is all but extinct, there being a few cases only in existence and these are in Africa. Now yellow fever is all but extinct, there being comparatively few cases in existence and most of these are in Africa. With the knowledge uncovered by the American Yellow Fever Commission—whose work is one of the most thrilling romances of modern medicine—General Gorgas in one year reduced the number of yellow fever cases in Havana from its usual quota of

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hundreds to half a dozen and accomplished its entire disappearance in two years or more.

Typhoid Fever.—Twenty years ago the death rate in California from typhoid fever was 35.4 per hundred thousand. Last year it was 2.4. Typhoid infection is now almost exclusively a carrier or milk-borne disease. It is entirely possible to exterminate it, but this happy ending will probably not be successfully accomplished for many years because it will require a more general appreciation of the need for well-equipped health departments with full-time health officers than prevails at present, before such total elimination can be obtained.

Cholera.—In November, 1850, cholera, imported on a sailing vessel by way of San Francisco, appeared in Sacramento. The deaths soon rose to fifty and sixty per day. The wildest terror prevailed and the town was practically depopulated because the well fled to avoid the epidemic. The Hamburg cholera epidemic in 1892, with its nine thousand deaths, is known to all. But that New York City had thousands of deaths from cholera before the Civil War, and that the Mississippi Valley was periodically invaded by way of New Orleans, is not so widely known. Nevermore will cholera be epidemic where modern sanitation prevails.

Bubonic Plague.—Although bubonic plague has succeeded in establishing an endemic focus in California, we hope by intelligent application of our very complete knowledge concerning this disease to prevent any very serious human outbreak. So recently as in the fall of the year 1924, Los Angeles witnessed a somewhat virulent outbreak of pneumonic plague which would probably have resulted in great loss of human life, but fortunately it was discovered early and promptly gotten under control. In spite of that experience, the lawmakers of that city are still struggling with a rat-proofing building ordinance that has been proposed by the health authorities and the medical profession. Plague is primarily a disease of rodents and only secondarily a disease of man, so that measures of rat-proofing, food protection and proper garbage disposal, if efficiently carried out, are effective in protecting the human population. Such measures are necessary wherever this disease becomes endemic in the rodent population.

Infantile Diseases.—The attack in our own country on causes of infant mortality has resulted in a change within twenty years from a situation where in the average American community only 80 to 85 per cent of the babies survived the first year of life, to the present where from 93 to 96 per cent reach one year of age.

EXAMPLES OF DIFFICULT PROBLEMS IN DISEASE PREVENTION

Lest the recitation of these accomplishments of preventive medicine lead to the belief that most of the work has been done, let us consider some of the unsolved problems still to be attacked. In considering the magnitude of the task yet to be accomplished it is permissible, for purposes of

appraisal, to expand the term "unsolved" to include "unaccomplished" and to consider, therefore, not only those diseases and conditions in which no attack has been made, but those in which progress is far from satisfactory.

It will be noted that the few diseases that can be listed as already conquered are, if we except smallpox, controllable by means applicable to man's environment. With yellow fever and typhus fever, quarantine is unimportant. No procedure of vaccination is required and the war against the insect carrier is effective. With typhoid fever and cholera, sanitation of the environment so as to insure pure drinking water and proper disposal of wastes accomplishes the desired result, again without quarantine or immunization. The prospect of success apparently depends on whether or not science provides a means of warfare that does not conflict with the ideas of personal liberty of the people or which does not require too much individual effort or acceptance of scientific teaching.

Malaria.—Malaria occupies an intermediate position, because lack of money is the principal obstacle. In many localities in this country malaria is still a major public health problem, and in the tropics it is one of the principal causes of death; and yet we are in possession of all the facts necessary to completely control it, in addition to having a specific remedy for the cure of the disease. To completely conquer this scourge of the human race, that has been responsible in times gone by for the fall of empires, only requires money in the hands of those who know what to do with it, or knowledge in the heads of those who have the money, but who do not know what to do with it. It may not be generally known that malaria is one of the large public health problems in California and that the State Board of Health in one year expended \$10,000 for a demonstration antimalarial campaign in the northern Sacramento Valley. The result of this work was as usual; that particular district profited greatly and was duly thankful, but the example was not taken to heart by other communities equally in need. One is forced to conclude that education of the people to spend their money for health is usually a slow and discouraging process.

Smallpox.—Smallpox is an example of a disease that awaits only the general acceptance of scientific teaching regarding facts that are as obvious and as easily capable of proof as is the operation of the law of gravity. California at one time had a law requiring the vaccination of children as a prerequisite for attendance at school. The antivaccinationists succeeded in getting this law amended in 1911 to permit the filing of a certificate of conscientious objection instead of a vaccination certificate. The result has been that we now have a very large percentage of unvaccinated children, 80 per cent in some communities. In 1923 even this remnant of law was repealed and the people of California may now have, so far as public health administration is concerned, all the smallpox they want. As a result of all this laxity, smallpox in California is becoming a disease of

children as it was in Jenner's time. Going back to 1912 we find that the cases of smallpox in California in the first five years of the period intervening averaged 511 per year; in the second five years the average was 2683, and in the third five years it averaged 4263 per year. The deaths per year in the same period were 9.4, 9.8, and 74. In 1924 there were fifty-six deaths among 10,000 cases. In 1926 there were 236 deaths among only 2700 cases, showing the introduction of a virulent strain. It is plain that the practicing physician must bestir himself if anything at all is to be done toward diminishing the incidence and mortality from smallpox.

FACTORS. ANTAGONISTIC TO EFFECTIVE DISEASE PREVENTION

In surveying the problem of prevention as a whole, particularly when a grouping of the various causes of premature death is attempted, segregating these according to knowledge of epidemiology in relation to results achieved, one is immediately impressed by three outstanding facts. First, the existing knowledge concerning preventable disease is far in advance of its application in practice. If all the people of the country were agreed on two postulates, certain causes of disease and premature death, such as typhoid and paratyphoid fevers, malaria, smallpox, diphtheria, syphilis, gonococcus infection, cholera, dysentery, hookworm disease, pellagra, plague, rabies, typhus fever and possibly tuberculosis would absolutely disappear and many of the causes of death in middle life which are due to infections contracted earlier would also be enormously decreased.

These two postulates are: (1) the requirements of preventive medicine for the prevention of disease are the best that are at present available. This of course carries with it the opposite concept that the preachments of the faddist and cultist and the ill trained generally are not to be considered at all; and (2) that preventive medicine in all its fields and divisions and whether applied by official community health agencies or by practicing physicians shall be supported by the people whole-heartedly, both morally and financially. We are, I fear, about as far from this golden age as we are from the millenium.

The second outstanding observation—and this is a real obstacle to realization of the golden age of health—is the personal nature of the most important of the known preventive measures. Smallpox can never be permanently exiled until the majority of our citizens accept the dictum of medical science that only vaccination prevents smallpox and demonstrate their acceptance by actually getting vaccinated. In other diseases the requirement is different but still personal. Personal hygiene is the big factor in the prolongation of life and the living of a better and happier life, and the medical profession is the means through which the people should derive the benefits from the advance of medical science.

The third outstanding consideration in attempting to attain the type of natural long life, the rarity of which was deplored by Montaigne, is

the size and strength of a division of the enemy not yet attacked—for the reason that adequate knowledge is lacking. The enemy appears almost invincible at present.

UNSOLVED PROBLEMS

In this division the following diseases may be mentioned:

Influenza.—Influenza is still with us, its cause unknown, its mode of spread only suspected, its immunology a blank. When it strikes we can only bury the dead. Neither incantations nor gauze masks, asafetida bags nor vaccines have the slightest effect on the progress of the epidemic.

Cancer.—Cancer stands high on the list of the causes of death. In 1919 in the registration area of the United States the deaths from malignant tumors were nearly 69,000. This was a rate of 80.5 per 100,000 of the population and was 6.3 per cent of all deaths recorded. Cancer was sixth on the list of causes of death and at ages over forty, it caused one death in eight among women, and one in fourteen among men. Cancer is definitely increasing in the mortality tables. Whether this is a real increase or is only apparent and due to better diagnosis or to a saving of life at its beginning, thus permitting more to arrive at the cancer age, is a matter now being debated by the statisticians.

Diabetes.—Diabetes is an important member of the "unattacked" group. Insulin is of no help in its prevention, however valuable it may be in treatment, but it is an important factor in prolonging life among diabetics. The mortality from diabetes has been steadily increasing for several years, more rapidly in fact than any other disease. In New York City in 1866 there was reported one death from diabetes to 2437 from other causes. In 1923 there was one diabetes death to fifty-one from other causes. In the registration area in the last forty years the death rate from diabetes has increased from 2.8 to 16.1 per 100,000. An epidemiologic study of the diabetes statistics points to a number of factors, dietetic, occupational, and racial. The advantage of frequent health appraisements by competent physicians is well illustrated in diabetes by such occurrences as the following related by Fiske. A middle-aged man who was about thirty pounds overweight, showed a trace of albumin and a few hyalin casts in his urine, but no sugar. He was warned about this condition and advised to have the urine examined periodically; in addition he was urged to have blood-sugar examinations made, a warning he ignored, and his physician did not encourage him to have this done because there was no sugar in the urine. This man died within eighteen months of diabetes.

Heart Disease.—Heart disease as a cause of disability and death is on the increase and now stands at the head of the list. Various surveys of various population groups show that 2 per cent of the population of the United States, over two

million persons, have heart disease in a more or less serious form. Under twenty-five years of age organic heart disease causes as many deaths as typhoid fever. Between twenty-five and thirty-five years it causes as many deaths as lobar pneumonia; between thirty-five and forty-five years organic heart disease causes more deaths than nephritis. After forty-five years of age it shows a higher rate than any other cause.

The extent to which diseases of the kidneys and heart, the so-called degenerative group, are due to the infections of early life is not generally appreciated. Ophüls in a study of five hundred consecutive autopsies, considered in relation to the clinical histories of the subjects, showed this relationship very conclusively.

The findings of the draft boards during the war were a shock to most persons, professional hygienists included. Practically half of the young men of the country between the ages of twenty-one and thirty-one, the age of best physical condition, showed defects and half of these were such as to exclude them from military service. Most of these defects could have been prevented or corrected in childhood.

The Life Extension Institute of New York has shown the need not only of better medical supervision in early life, but of a continuation by periodic physical examination of the apparently well, particularly in middle life. That organization has found in examinations of supposedly healthy people, engaged at work, 53 per cent with faulty vision uncorrected; 44 per cent showing faulty posture; 21 per cent with flatfeet; 16 per cent showing heart impairment; 12 per cent with combined heart, blood vessel and kidney changes; 25 per cent with well-marked arterial changes; and 26 per cent showing blood pressure changes of importance.

In 1500 routine x-ray examinations 17 per cent of the persons examined were found with enlarged hearts; 15 per cent with evidence of former tuberculosis; 4 per cent with active tuberculosis; and about 5 per cent with changes in the great blood vessels.

The economic loss in this country annually from preventable disease and death runs into billions of dollars.

CENSUS BUREAU AND OTHER STATISTICS ARE IN ACCORD

An examination of the Census Bureau report of deaths gives a startling picture of the incidence of these infections of early life that pave the way for many of the conditions just enumerated. These figures, so far as the preventable diseases are concerned, constitute a disheartening confirmation of the statement earlier recorded, that knowledge is in advance of application. Following is a list of the number of deaths in the United

States for the year 1920, from the principal communicable diseases expressed in round numbers:

Typhoid fever.....	7,000
Malaria.....	3,000
Measles.....	8,000
Scarlet fever.....	4,000
Whooping-cough.....	11,000
Diphtheria.....	13,000
Influenza.....	62,000
Tuberculosis.....	88,000
Meningococcus meningitis.....	5,000
Pneumonia.....	72,000
Bronchial pneumonia.....	47,000
Diarrheal diseases of infants.....	38,000
Puerperal septicemia.....	6,000
Other puerperal causes.....	11,000
Congenital debility.....	9,000

Aside from the matter of communicable diseases, increasing attention is being given to the physical condition of the children, and often through private agencies and school departments, instead of in health departments as it seems to the writer it should be. The results of various investigations of the problem show how tremendously important it is and cause the direct figures to be more understandable.

Wood of Columbia expressed the opinion that 1 per cent, or 200,000, of the 22,000,000 children of the United States are mentally defective; 250,000 have organic heart disease; 5 per cent, or 1,000,000, now have or have had tuberculosis and the same number have defective hearing; 25 per cent, or 5,000,000, have defects of the eyes, mostly correctable, but going uncorrected. Three to five million have adenoids, diseased tonsils or glandular defects; 10 to 20 per cent have weak foot arches, spines, or other joint defects. Nearly 25 per cent suffer from malnutrition; 50 to 75 per cent have defective teeth.

The child is best reached through official public health in the schools, but all other citizens, such as infants, preschool children, and adults are the field of the private practitioner, who should be also a practitioner of preventive medicine. This is not only a lucrative division of practice, but the doctor holds a grave responsibility in that he, better than anyone else can educate the people to a realization of the truth—that an ounce of prevention is worth more than a pound of cure.

FUTURE PROGRESS IN PREVENTIVE MEDICINE

Future progress in the prevention of disability and death must rest more on a better utilization of our present knowledge than on new discoveries. This knowledge has been accumulated as a result of progress in the basic medical sciences, not always made by doctors of medicine, it is true, but nevertheless the correlation and application of this knowledge is best made by physicians and the accumulated store of this special knowledge is in the custody of the medical profession. It follows, therefore, that the principal responsibility rests on the medical profession. We must accustom ourselves to thinking in terms of prevention as well as of cure. The increasing attention now being given to this important subject in many of our medical schools will result in better equipment

of the profession, but the courses are still too often tinctured with hold-over ideas from the very recent but completely finished period of predominance of environmental sanitation in public health. Not that this is no longer important, but it no longer dominates the field.

This is the age of personal hygiene; of personal responsibility; of medical sociology; and the sooner the fact is appreciated by those guiding medical education the better for the practice of medicine and for the recipients of its benefits.

RÔLE OF THE PERSONAL PHYSICIAN IN PREVENTIVE MEDICINE

The term "preventive medicine" is all-inclusive. It embraces all the special fields of hygiene: community and personal; public and personal health; and it embraces the activities of many workers, not all of whom are doctors. The public health nurse, the sanitary inspector, the bacteriologist, are all practicing preventive medicine in common with the physician who vaccinates the child or advises the mother. The physician, however, must be the leader and the director. I believe that an executive health officer should always be a physician. Not that a physician is *per se* a specialist in public health any more than he is *per se* a competent specialist in ophthalmology, but as the oculist needs first the training of a physician, so should the health officer have that foundation training. A few years before community sanitation became as generally applied as at present, the line of demarcation between public and private health was better defined than it is now, because physicians were then giving little thought to prevention, and sanitation of the environment occupied a relatively larger place in the war on disease than it now does. With the growing recognition of the importance of personal hygiene has come an expansion in the activities of health departments. School medical inspection, health centers, well-baby clinics, tuberculosis, venereal, and other clinics, seem at times to be in competition with the private doctor, but when these activities are properly directed there is no conflict between the two; on the contrary a symbiotic relationship should obtain, both deriving benefit from the association. The extent to which the doctors of a community fulfill their responsibility and take advantage of their opportunity to expand their practice in the field of prevention is the guide of the future in the development of health departments. Public health is a matter of education and the better the people are educated by their natural leaders in medical thought, the physicians, the more will they come to them in advance of illness and the less they will run after fads and fancies.

The public is keenly interested in health and the means whereby it may be retained; as the general support given to social welfare enterprises, to the tuberculosis movement, the growing support of official public health, the popularity of health magazines, even though many of these are the organs of quacks, testify. In this day and age the doctor who tells the man who has broached the subject of a physical examination he does not need it, is making a serious mistake.

The patient knows better and the doctor has immediately fallen in his regard. The doctor who is consulted by a prospective mother, and who allows the time to pass without taking steps to keep informed of the condition of his patient, is not only neglecting his patient, but making a mistake of policy. The doctor who attends a woman in confinement and fails to give her instruction in the care of her infant will lose in her estimation when she later obtains from the health center doctor or public health nurse the advice she so much needed. The doctor who receives with resentment instead of with appreciation the note from the school medical examiner to the effect that a child requires attention because of diseased tonsils or adenoids is out of step with the times. The doctor who lets months go by without advising the mother to bring her baby to the office at the third or sixth month for vaccination against smallpox; and again at one year of age for toxin-antitoxin, is neglecting a pleasant and profitable item in practice and encouraging a reputation for incompetence. The public are learning faster than some of us realize what is expected of a competent physician.

Preventive medicine is a door through which the quack and the charlatan cannot follow—it stands ajar; why not enter?

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DISCUSSION

JOHN L. POMEROY, M. D. (330 North Broadway, Los Angeles).—Dr. Wilfred H. Kellogg has clearly brought out the serious need for the medical profession to practice more fully the principles of preventive medicine. Especially in California, with our rapidly growing population and the great activity of cults, the physician has an unusual responsibility.

It is the duty of the practicing physician to become thoroughly competent in all phases of hygiene and public health. It does little good to bemoan the desertion of the regular medical profession by large groups of lay people. In my opinion the medical profession must be aroused from many of their out-of-date ideas concerning organization and educational activities.

I endorse the views of Doctor Kellogg particularly in the fact that, if the members of the medical profession fulfill their entire responsibility, health departments can curtail many of their present activities. Many criticisms from physicians, of the present-day activities of the health department are entirely unjust, since these same physicians have failed to educate the mother in the care of the well baby, in vaccination and in annual examinations, regardless of whether patients are clinically sick or well.

I feel that this message should be driven home to the profession time and again, and that Doctor Kellogg has presented the matter in an able manner.

JOHN J. SIPPY, M. D. (San Joaquin Local Health District, Stockton).—In the light of Doctor Kellogg's comment concerning the amount of preventive work which remains to be done, and the burden of the labor which must fall upon the medical profession, physicians generally should have a new appreciation of their responsibilities. It has always seemed incongruous for physicians to oppose the efforts of the public health worker. The public health nurse, for instance, may at times be overzealous, for she sees much neglect of health and hygiene; but after all the nurse who recommends any but the medical practitioner is as rare as the dodo. Medical organizations may disagree with the method of administration of the Sheppard-Towner Act; but the objections have

been largely hypothetical. Certainly the work carried on under that act has been beneficial to medical practice, and has speeded the growth of pediatrics. Preventive medicine, even though it may lack the spectacular, is more essentially a part of medical practice than surgery, and the public must be taught to make it proportionately as remunerative. The physician who says this cannot be done does not realize that medical silence is to a great degree responsible for public lack of appreciation of medical effort and aims. Let us hope Doctor Kellogg's paper will further the new spirit in the California profession.

JOHN N. CHAIN, M. D. (Fourth and E Streets, Eureka).—Doctor Kellogg's paper is provocative of a great deal of thought to one who has been doing pioneer work along public health lines for a number of years. It brings two kinds of thought: One is resentment against the average general practitioner for his lukewarmness or his total lack of appreciation of his responsibility in helping in this wonderful work and another resentment against the public for failing to value its health and help in its conservation. The second thought is a desire to construct a better working system whereby the public health worker can accomplish more even with the millstones of the noncoöperative practitioner and the don't-care public around his neck. Governmental control of health and sanitary conditions in the hands of competent workers would be a step toward the solution of many of our troubles. Their work should be constructive and educational and when necessary they should have the power of the police officer. I believe that our best efforts can be used in developing this system, and its influence will lead the general public and the general practitioner to follow. I do not believe that they will ever themselves arrive at leadership and, in the future as in the past, they will always be noncoöperative. The leaders in public health work will always be few in number because of the peculiar personality required for the work and the spirit of self-sacrifice and service that must exist. Probably in the medical schools too much attention has been given to effect rather than to cause. Scarlet fever has been studied as a definite cause for the effects shown, but prevention through eradication of the cause has been overlooked in studying the effect. Too little public health instruction, I fear, has been absorbed by the student at the time of graduation.

THE LURE OF MEDICAL HISTORY

YOUNG AND HELMHOLTZ

The Master Minds of Medicine

By WILLIAM DOCK, M. D.
San Francisco

WE are all familiar with the contributions to medical progress in the nineteenth century of men who were primarily scientists, notably Pasteur and Roentgen. I have heard it seriously urged that this fact, as well as the introduction of anesthesia by a dentist, proves the repressive effect of the medical education of those days on the imaginations of the regular students of medicine. Few physicians realize, and take pride in the thought, that two men, trained in the classical medical schools and engaged in the practice of medicine, first established fundamental concepts which were essential to the further development in physics and chemistry—the wave theory of light and the law of conservation of energy. How few of us, tuning in on bedtime yarns from the national conventions, know that the pupil of one of these physicians, carrying on the investigations



Plate 1.—Thomas Young. From an engraving by J. Thomson after a painting by Sir Thomas Lawrence.

inspired by his master, discovered the Hertzian waves now so cautiously parcelled out to the broadcasters.

Thomas Young and Hermann Helmholtz added generously to medical progress, but are rarely included in medical biographies because they left no school of trained physicians, and were not dramatic except in their achievements.

THOMAS YOUNG

Thomas Young, a Quaker, born in 1773 in a small town near London, was from earliest youth eager to learn. At fourteen he was expert in the use and construction of instruments such as the microscope, and well read in biology, geology, and astronomy. He was familiar with French, German, Italian, Latin, Greek, Hebrew, and Arabic. The study of medicine he began in London under John Hunter, Baillie, Latham and others, and after a year in Edinburgh and a year in Göttingen, returned to Cambridge for three years. At twenty he had established, by his demonstration of the interference bands, the validity of the undulatory as opposed to Newton's corpuscular theory of light, and at this early age, five years before he received his M. D. from Cambridge, he had been elected to the Royal Society. On graduation he returned to London to the fortune, library and medical reputation of his uncle, recently deceased. While commencing practice he lectured for four years as professor of experimental philosophy in the Royal Institute. His experiments in physiology and his restless curiosity in many fields of learning continued throughout his life. His chief medical contributions were

studies in optics and vision; he also first used the kymograph and devised a simple method for measuring red blood cells, investigated climate, mortality statistics and consumption, wrote a widely used text on diagnosis and in his Croonian Lecture on Function of the Heart and Arteries, gave a sound analysis of the circulation, proving the purely passive rôle of the great vessels. Next to his discoveries in the physics of light, his most astonishing accomplishment was the deciphering of the Rosetta stone. The fragment contained Greek and Egyptian hieroglyphic and enchorial script. Young succeeded in translating much of the Egyptian, and established sound principles for the guidance of others in deciphering other unknown languages. He knew the worth of his accomplishments, but was not overcome by them and it remained for two Frenchmen, Champollion, in Egyptian, and Fresnel, in physics, to extend and force the acceptance of his discoveries.

He continued to practice all his life, never became a fashionable physician and is said to have "smiled incredulously at 'skill,' as it was called, and quoted Ecclesiastes without being pessimistic in his tendencies." He made ward rounds at St. George's Hospital, and though not a popular teacher his "Preliminary Essay on the Study of Physic" in the "Introduction to Medical Literature" deserves a high place among writings on medical education. Those who ascribe their ill success in practice to superior character will be abashed by his statement, "It must be a mistaken opinion that a man of great abilities is morally incapable of being a good physician." We have heard some talk of the young man's increasing difficulties in medicine, but the argument fails on reading his defense of prolonged study (in his own case eight years), "nor will there, in all probability, be any want of time for so extensive an undertaking: a sensible writer on medical education asserts that he has literally 'known a physician above fifty years of age objected to for his youth.' In a metropolis it is necessary that a physician be prepared, whatever his abilities may be, to pass at least ten years after his first establishment without the slightest emolument from his profession."

HERMANN HELMHOLTZ

Hermann Ludwig Ferdinand Helmholtz, a descendant on his mother's side of William Penn, was born in 1821, two years before the death of Young. Helmholtz was a brilliant scholar, but of such slender means that to secure his medical training he contracted to serve five years as army surgeon after graduation, and thus entered the Royal Friedrich Wilhelm Institute. He had readily mastered languages and for pleasure studied Hebrew and Arabic, as had Young. His graduation thesis described the origin of nerve fibers in ganglion cells, and while house surgeon at the *Charité* in Berlin, he studied fermentation and attacked the theory of spontaneous generation. As an army surgeon at Potsdam he continued his investigations of muscular metabolism, and in 1848 published his communication on the conservation of energy. This paper showed his



Plate 2.—Hermann Helmholtz. From a pastel by von Lehnbach.

capacity as a mathematical physicist; it also furnished the stable foundation on which all of our present theories of physics and chemistry rest, namely, the First Law of Thermodynamics, which affirms that when any quantity of energy disappears at any place an equal quantity appears in some other place or places. Humboldt, one of the leading scientists of Europe, an old friend of Thomas Young and one of a group of men who had closely followed Helmholtz' work, now procured his release from his army contract and secured him a position as lecturer in anatomy. The following year he became professor of physiology at Königsberg, where he remained six years before taking the chair of anatomy at Bonn. While at Königsberg he timed the rate of transmission of nerve impulse with extreme accuracy and showed that, contrary to previous assumption, it was much slower than the speed of electricity. In the same year he invented the ophthalmoscope. It is not without significance that these two discoveries, of great importance to medicine, resulted from study of questions arising in preparation and discussion of his class teaching. Later, at Heidelberg, he continued his studies on vision, the media of the eye, and on sound and the physiology of hearing. These problems led him into pure physics, and in 1871, after his only return to medical practice as hospital organizer in the army service, he returned to Berlin, first as professor of physics and later as chief of the Technical Institute. The study of vision and of light brought him to the interpreta-

tion and expansion of Clerk-Maxwell's theories of the electromagnetic nature of light. In the course of this work he led his pupil Hertz into the labors which eventually resulted in the discovery of wireless.

In the year before his death in 1894, he visited America accompanied by his family, and they were astounded by the fortitude of the farmers of the Great Plains, and the barbarous life in Chicago.

Helmholtz was interested in every phase of thought, and was a lover of music, poetry and mountaineering, and a man of remarkable charm and modesty. Though his popular lectures were clear and illuminating, his class lectures were followed only by a few of his students. He was able to guide and form many physicists from foreign lands when they came to work with him. His respect for the historic development of his discoveries was so great that he never urged his own priority and encouraged others who worked on the same lines to publish first, as in a notable instance when he and Cramer independently noted the alteration in the image reflected from the anterior surface of the lens during accommodation. Dr. J. Robert Mayer, another physician, had first realized the existence of the law of conservation of energy. Although Helmholtz' mathematical proof was independent of Mayer's vision, the former always upheld Mayer's claim of priority in this momentous discovery.

The lives of Young and Helmholtz show us how powerfully the medical profession of that day attracted men of great intellectual capacity, and how the educational methods not only failed to abate their energy but permitted their accomplishing creative work very early in life. Those of us who may incline to ascribe Young's success to his wealth and independence as well as his mental powers will look with incredulous admiration upon Helmholtz, recently married and on a full-time salary of \$600 a year, and yet, in his twenty-ninth year inventing the ophthalmoscope and precision instruments for timing the conduction of nerve impulses.

Stanford University Hospital.

Health and Child Welfare Work in Cuba—As part of Cuba's official antituberculosis campaign \$3,000,000 has been appropriated for the construction of tuberculosis sanitariums. Preventorium for children whose poor physical condition predisposes them to the disease will also be established. Plans have been made for the compulsory reporting of cases by physicians, the extension of the visiting-nurse system, the keeping of accurate statistics of cases, and the education of the public through motion pictures, lectures, and literature.

Cuba is planning also for a national child welfare congress, to be held next December, to continue for Cuba the work of the Pan-American Child Congress held in Havana last December. The committee in charge is under the chairmanship of the Secretary of Health. The five sections proposed are hygiene, medicine, psychology and education, sociology and legislation, and care for defective and delinquent children.—United States Department of Labor.

CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

RECORDING OF TREMOR—A NEW METHOD*

WITH SOME ACCOUNT OF ITS CLINICAL
SIGNIFICANCE

By HENRY G. MEHRTENS, M. D.

AND

PEARL S. POUPPIRT, M. D.
San Francisco

TREMORS have interested medical men since the earliest times. Simple observation of the extremities was sufficient to elicit most of the information we now possess. Later, as more detailed and permanent records were required, devices were made utilizing the kymograph, levers, tambours, and finally the string galvanometer. Although these methods were productive of records exceedingly helpful in the understanding of tremor, our experience with them led us to feel that the inertia developed in the working of tambours, levers, etc., was a handicap and that the utilization of light as a means of registration might well give us records free from such objections. It seemed as if such an inertia-free apparatus would be particularly useful in recording the finer tremors especially those observed in the normal individual, because, in normal individuals an inclination to tremor is present. This innate tendency, with centers in cord and cortex, is balanced by an inhibitory mechanism with major centers in the basal ganglia, mesencephalon and cerebellum. Any pathological condition which tends to decrease the effectiveness of this inhibitory mechanism will result in tremor. Dr. S. A. Kinnier Wilson considers tremors as the outcome of the activity of a low-grade physiological mechanism released from a nonvolitional pre-spinal center.

DESCRIPTION OF APPARATUS

The apparatus shown in Chart A consists of a source of light, a lens, a timer, and a camera, equipped with a motor-driven continuous strip of sensitive paper. The hand is supported either at the wrist or the metacarpo phalangeal joint. To make a sharp record, an ordinary sewing

* From the Neuropsychiatric Laboratories of Stanford University Hospital.

* Read before the Neuropsychiatry Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30-May 3, 1928.

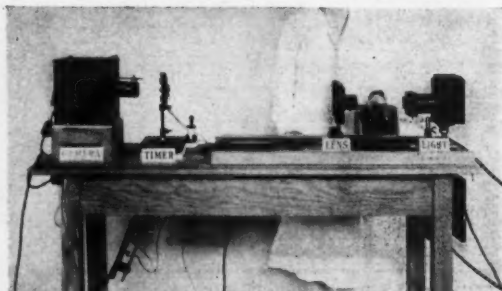


Chart A.—Apparatus Described in Text

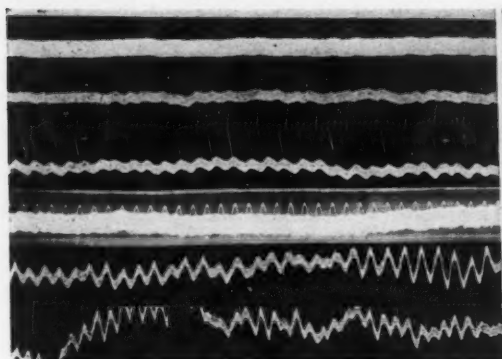


Chart B.—Types of Tremor Found in Normal Individuals

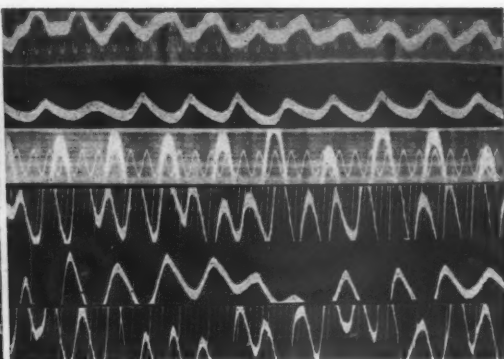


Chart C.—Parkinsonian Encephalitis

thimble perforated by a fine needle is slipped over the patient's finger. The shadow of the needle makes the record.

We soon found that the tremographic records taken from supposedly normal individuals differed in a marked degree. It was even possible to divide the normal records into groups, such as are shown in Chart B. The groups range from a barely perceptible tremor up to a rather coarse tremor with some irregularity. The rate in general varied between 9-15 per second. It was found necessary to repeat each record several times to be sure we were dealing with a typical tremor and to take the tremor under approximately standard conditions. In attempting to compare the temperamental make-up of the subject with his tremor a certain rough correlation was possible. Slight or absent tremor was found in individuals exhibiting little clinical evidence of emotional strain or tension. At the other end of the series, relatively coarse or irregular tremors were found in individuals showing clinical evidence of emotional lability.

Among the organic tremors the Parkinsonian type of encephalitis (Chart C) furnishes a typical coarse tremor, regular in rhythm and slow in rate, ranging from four to six per second. Alcohol generally is credited with producing a fine tremor. In our experience the alcoholic tremor will vary depending upon the stage of the disease. In the acute stage we found coarse tremors, in the

chronic stage a fine tremor. Paresis gave a fine tremor. Hyperthyroidism was another condition which did not fulfill the textbook picture. It is true that in certain chronic states we did find the classical fine tremor (Chart D) but when acute conditions were examined in patients showing basal rates of +60 to +70 the resulting tremors were very coarse. The feeding of large amounts of thyroid extract produced a coarse tremor quite comparable to those obtained in acute cases. It is possible to observe at times a fine tremor superimposed on a coarse one, perhaps indicating more than one factor at work.

Tremor induced by the injection of adrenalin did not change the rate, but only amplitude and regularity. Their resemblance to records made in acute hyperthyroidism is quite suggestive of a common mechanism.

Hysteria according to most authors, should give a coarse regular tremor. Our records (Chart E) were for patients whose diagnosis we felt certain, gave an almost uniform irregularity in amplitude. We are inclined to believe that some of the tremors in the literature labeled hysteria may well belong to our classification of the tense normal. Some insight into the difficulty met in treatment of the hysteric is brought out in the tremograph of a treated hysteric. Here, even after an almost perfect result was secured for some weeks, simple conversation about tremor brought out the fundamental instability of the nervous system. The re-

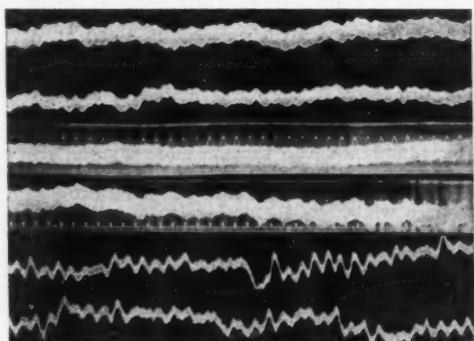


Chart D.—Hyperthyroidism

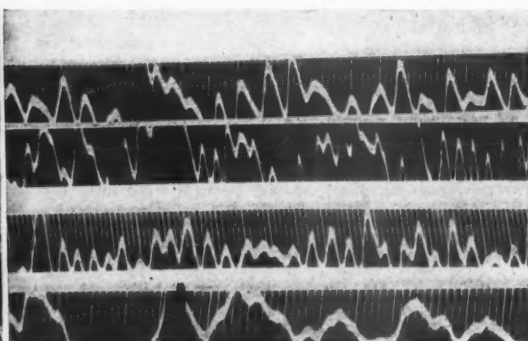


Chart E.—Hysteria

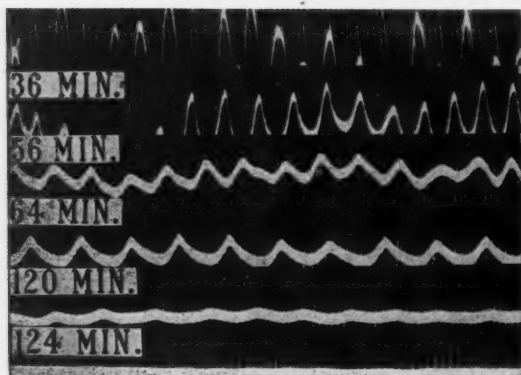


Chart F-1.—Effects of Hyoscin

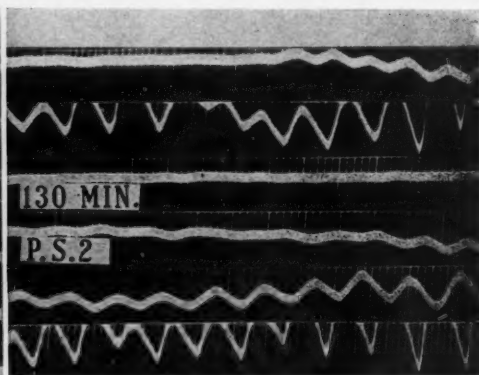


Chart F-2

relationship of hysteria to simulation is well illustrated by the efforts of members of the house staff, after much practice, to simulate organic tremors. The results in no way resembled an organic tremor, but showed surprising similarity to hysterical tremor. This experiment suggests the possibility of an hysterical tremor being little more than an unconscious simulation.

In studying the effect of hyoscin upon organic tremor (Chart F) we found, as have previous observers, that the tremors are flattened out without changing the rate or rhythm. After the tremors were removed it seemed a propitious time to test out the reported hypersuggestibility of the patient under the influence of hyoscin. Psychic stimuli at first chosen at random were so successful in reproducing tremor that we worked out a series of test words including some of neutral character and some heavily weighted with emotion. The resulting tremor was directly proportionate to the intensity of the emotional stimulus. We next compared bulbocapnin with hyoscin. Both obliterated tremor. In either instance emotional stimuli re-established tremor, but bulbocapnin in every instance seemed the weaker of the two drugs.

Returning to our previous problem we tried out various psychic stimuli on the same subject with and without a previous injection of hyoscin. In both instances a neutral stimulus produced no variation in tremor, and a strongly emotional stimulus produced a definite variation in the tremographic records. The response of the patient under the influence of hyoscin seemed the more vigorous and prolonged.

From the above experiments it seems that tremor may be influenced by the emotional states. We hope to show in a later communication that this variation of tremor elicited by emotional stimuli may be of clinical usefulness. It is possible that the information so obtained may parallel and perhaps supplement the results given us by the psychogalvanic current.

CONCLUSIONS

1. The apparatus described above is simple, easy to operate, is free of inertia and is especially useful in recording fine tremor.

2. The normal individual exhibits tremor which can be divided into four types. These tremor

types roughly parallel the nervous tension found clinically.

3. Tremographic records of acute hyperthyroidism, induced hyperthyroidism as the result of feeding thyroid extract, results produced by injecting adrenalin, as well as some of the hysterical states all showed a similarity great enough to suggest some mechanism common to them all.

4. Our results would indicate a relationship between tremor and emotions. Variations of tremor elicited by emotional stimuli may ultimately turn out to be of clinical usefulness—even paralleling the results obtained from the psychogalvanic current.

5. Hyoscin would seem to amplify the emotional effect on tremor.

6. The greatest usefulness of these experiments is to increase our interest in such an important diagnostic sign as tremor.

Stanford University Hospital.

CARCINOMA WITH MUCOCELE OF APPENDIX

REPORT OF CASE

By M. HAWKINS TOPPING, M. D.
Los Angeles

H. S., a man, age twenty years.

February 6, 1928, patient seen about midnight. Complained of severe pain in lower right abdomen.

Family History.—Mother died of some acute intestinal trouble. Refused operation.

Personal History.—Diphtheria (very bad case). Tracheotomy was performed at age of two. Tonsillectomy.

Present Illness.—On February 6, 1928, patient developed some pain in region of umbilicus which gradually increased in severity, and became localized in right iliac fossa. There was marked tenderness on pressure at McBurney's point. Patient became nauseated. On February 7, patient sent to hospital. After admittance pain became more intense; tenderness over entire abdomen. Patient had rather severe chill. As soon as possible after admittance to hospital he had a white blood count of 16,000. Patient operated for appendicitis. Specimen vermiform appendix.

Examination, February 7, 1928.—Specimen consists of appendix exhibiting marked variation from the normal. It is larger in diameter with inflammatory changes in the surrounding fat. Upon one side of it is a ruptured cystic cavity which apparently contained mucus and hemorrhagic contents. The whole mass measured 5.5 x 3 x 2 centimeters. The wall of the ap-

pendix is very thick, and in two places there are obliterations of the lumen; at the tip and near the base, there is also a yellowish diffuse mass in the mucosa near the base. At one place in the wall of the appendix there is a mucocele measuring 1.5 centimeter in diameter.

Microscopic.—Section through the yellowish colored mass in the mucosa shows it to be a carcinoma containing solid groups of cancer cells. Section through the wall of the ruptured cystic cavity mentioned above shows an inflammatory and hemorrhagic connective tissue wall.

Diagnosis.—Chronic appendicitis with appendiceal carcinoma and a mucocele. Apparently the carcinomatous tissue is completely removed. This type of carcinoma exhibits only a small degree of malignancy.

Structure.—Two main varieties of the tumor appear: (1) columnar cell or gelatinous adenocarcinoma, and (2) small polygonal, spheroidal cell alveolar carcinoma. The former type presents the same age incidence (fifty-two years) and general malignancy as other similar intestinal carcinomas, while the former occur at any early age and are almost invariably benign (Rolleston, Jones). Transitional forms of intermediate age incidence are observed.

Carcinoma of appendix has been recognized and emphasized by Eting, Maschkowitz, Batzdoff, McCarthy, Zaaier, Milner, McWilliams, Kudo, Roketansky, Baldof, Batzdoff, Konjetzny, Kelly, and Neugbauer. The clinical course is merged with that of chronic appendicitis (McWilliams, Rolleston, Jones, Lit.), emphasizing the principle that each organ has its own form of carcinoma.

In conclusion, patient made a rapid recovery. So far no untoward symptoms of return.

Patient working every day.

1202 Brockman Building.

JAUNDICE IN ACUTE INFECTIOUS MONONUCLEOSIS (GLANDULAR FEVER)

REPORT ON TWO CASES

By V. R. MASON, M. D.
Los Angeles

A LARGE number of cases of glandular fever have been reported in recent years, and comprehensive summaries of the symptomatology may be found in modern textbooks and collective reviews. Jaundice as a prominent symptom or complication was reported first by Mackey and Wakefield¹ in 1926, and no other similar case has been recorded in the literature up to the present time.

Their patient was a white, male, twenty-three years of age, whose illness began with fever, sore throat, and glandular enlargement. On the sixth day of the illness jaundice was noticed, and the patient complained of dull epigastric pain. The tonsils had been removed previously. The liver and spleen were slightly enlarged and there was moderate general glandular enlargement. The leukocyte count was 15,800 per cubic millimeter, with 91 per cent mononuclears. The Wassermann reaction with serum was negative. No bile salts were present in the feces. No mention was made of bile in the urine. There was an immediate direct van den Bergh reaction with serum. The patient made a complete recovery and at the end of two months the blood counts were normal.

The two cases to be reported here are similar to the case reported by Mackey and Wakefield.

CASE REPORTS

CASE 1.—A white, male, twenty-three years of age, became ill October 14, 1924, with malaise, fever,

coryza, nausea, and pain in the "pit of the stomach." There was considerable abdominal distress after eating. When first examined, October 20, 1924, his temperature was 102 degrees F. The superficial lymph nodes were all moderately enlarged. The pharynx was red and the tonsils were large and red. The spleen was felt just below the costal margin. There was considerable tenderness on palpation of the epigastrium, but the liver was not felt. The hemoglobin and red cell count were normal. The leukocyte count was 15,700 per cubic millimeter with 84 per cent mononuclear cells. The fever varied from 101 to 102 degrees F. each day. On October 25, 1924, there was more marked epigastric tenderness and the liver edge was felt at the costal margin. There was also moderate jaundice of the skin and sclerae. The urine contained bile. The feces were of normal color. The jaundice persisted for nearly two weeks. The fever gradually subsided and the patient made an uneventful recovery. January 23, 1925, the leukocyte count was 7300 per cubic millimeter with 37 per cent mononuclear cells and 62 per cent polymorphonuclear neutrophils.

CASE 2.—G. C. M., a white, male, twenty years of age, was taken ill March 2, 1928, with malaise, chills and fever. He was confined to bed for a week and then attempted to be about, but weakness, fever and night sweats forced him to bed again. His throat became tender and sore. When first examined, March 19, 1928, there was moderate enlargement of the superficial lymph nodes and marked jaundice of sclerae and skin. The tonsils had been removed previously, but there was a dirty, patchy exudate over the pharyngeal mucous membrane. The spleen was palpable just below the costal margin. The liver area was tender on pressure, but the liver was not felt. The urine contained traces of albumin and bile. The feces were of normal color and contained bile. The leukocyte count was 15,400 per cubic millimeter with 87 per cent mononuclear cells. Hemoglobin and red cell count were normal. Platelets were unusually numerous in the smears. There was a positive direct Van den Bergh reaction with serum. The icteric index was 39. A Wassermann reaction with jaundiced serum was doubtful, but later both Kahn and Wassermann tests were negative. The exudate in the pharynx contained many cocci and a few spirillar and fusiform organisms. The fever varied from 99 to 101 degrees F. for a few days, and then gradually receded. March 27, 1928, the leukocyte count was 8000 per cubic millimeter with 74 per cent mononuclears. The patient made an uneventful recovery.

Discussion.—The clinical and hematological features of these three cases are so similar and typical that it seems improbable that an error in diagnosis could have been made. A typical form of acute catarrhal jaundice was readily excluded by study of the blood smears, and acute leukemia was ruled out by the benign course. The blood picture of my cases differed in no particular from that observed in other examples of this disease and reported in detail by Evans and Sprunt,² and Downey and McKinlay.³ Most of the mononuclear cells resembled those present in normal blood and contained many azurophile granules. There were also large numbers of lymphocytes, both large and small forms, some of which were apparently very young. In the cases of glandular fever which I have observed, the mononuclear cell formula of the blood has varied as described by Downey and McKinlay.³ Histocytes have predominated in some cases and cells of the lymphocytic series in others. This is not remarkable since the organs grossly involved in the disease house the lymphatic and reticulo-endothelial cell systems. Sections of lymph nodes and tonsillar tissue reported on by Evans and Sprunt,² Downey and

McKinlay,³ Fox⁴ and Longcope,⁵ showed no pathognomonic alterations. The striking alteration, however, was lymphoid hyperplasia with increase of mononuclear cells. It seems reasonable to assume that the blood pictures encountered in this disease might vary from case to case. I have seen outpourings of similar cells in great numbers in estivo-autumnal malaria, hemorrhagic smallpox, and sepsis. Similar "leukemoid" reactions have been reported in other conditions and have led to errors in diagnosis.

The platelets in glandular fever are always present in increased numbers from estimates of the stained smears of patients I have observed.

The cause of the jaundice in the three cases is of considerable interest. Mackey and Wakefield believed it was dependent either upon acute cholecystitis or pressure on the ducts by enlarged glands in Calot's triangle.

The occurrence of jaundice in three similar cases, however, makes those causes unlikely, and it would seem more reasonable to assume that an acute hepatitis with disturbance of the excretory function of the hepatic cells from swelling and inflammation led to a high bilirubin content of the blood stream with visible jaundice.

523 West Sixth Street.

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COCCIDIOIDAL GRANULOMA

CASE REPORT

By PAUL R. WALTERS, M. D.

Dinuba

THE appearance of an unrecognized disease in this community among several of the same nationality, with one death and one patient moribund, and the loss of contact with two others suffering from apparently the same disease justifies the presentation of this brief résumé and report.

Coccidioidal granuloma has been proven from a study of the cases reported, to be a disease peculiar to the San Joaquin Valley in California, occurring in residents or in persons who have been residents. The disease is infrequent. I have lived in Dinuba, San Joaquin County, for the past fifteen years; the case reported is the first to come under my observation.

Definition.—*Coccidioidal granuloma* may be defined as an infrequent subacute or chronic infectious disease caused by a specific mould fungus, *Coccidioides immitis*. It is characterized clinically

by cough, expectoration (frothy in character), elevation of temperature, acceleration of pulse rate, emaciation, weakness, and finally death; locally by glandular enlargements, and areas of edematous, reddened, scattered masses over the body, which either break down or exude a substance like ground liver mixed with purulent fluid when incised.

History.—This rare disease was first described by Wernicke of Buenos Aires in 1892. The second case reported, the first recognized in America, was reported by Rixford and Gilcrist in 1896. Many interesting and valuable observations, studies and investigations have been made since the report of the first case, among which might be mentioned the studies of Ophüls,¹ Philip King Brown,² Cummins,³ and Rixford of San Francisco and the serological work of Hirsch⁴ and Benson of New York, and the roentgen studies of Taylor⁵ of Los Angeles. The literature contains many interesting papers on this disease.

Geographic Distribution.—As previously stated, a review of the literature brings out the fact that the majority of the reported cases occurred in the San Joaquin Valley in California or in persons who had resided in this valley.

Etiology.—The disease is caused by a specific mould fungus named by Rixford, *Coccidioides immitis*. It belongs to the class *Ascomycetes*. It is a spheroidal double encapsulated body measuring from 20 to 40 microns in diameter, contains spores, and in aerobic culture a separate mycelium is produced. The habitat is unknown; it is supposed to be taken into the body through the respiratory tract by inhalation.

Morbid Anatomy.—The pathology of the disease in the internal organs closely resembles tuberculosis, while the external lesions resemble blastomycotic infection. The disease seems to begin in the respiratory tract, and is spread by the blood and lymphatic system. The bones, lymphatic glands, skin and soft tissue become involved before death.

Symptoms.—The disease presents itself as an ordinary cold or bronchitis, which may clear up temporarily. There seems to be a lull in the respiratory symptoms after about three weeks. The temperature is irregular and ranges from 99 to 101 or 102. The lymphatic glands enlarge, especially those in the cervical region; break down, and leave permanent sinuses. Soon various enlargements occur on the surface of the body like fair-sized furuncles, which are painful. Relief is obtained after drainage is established. These localized infections involve the bone and soft tissue. The patient becomes asthenic, emaciated, and later dies.

Diagnosis.—Race seems to play no part in this disease although the cases that I have seen are all in the Filipino race. Sex: the ratio is about twenty males to one female. Age: most of the cases occur in early or middle life although Reisman reported a case in a patient five years of age. The diagnosis may be established upon finding the causative mould. The absence of the

tubercle bacillus differentiates coccidioides from tuberculosis.

Prognosis.—The only hope for cure is in early recognition and amputation where possible.

Treatment.—There is no known medical treatment. I thought I had some benefit from the intravenous administration of 20 cc. of a 2 per cent mercurochrome solution.

REPORT OF CASES

CASE 1.—My first contact with this disease began November 26, 1927. I was summoned to the Dinuba Hospital to attend a sick Filipino boy, who said he had been ill about four weeks and was getting worse.

History.—J. R. Sex: male. Age: 23 years. Occupation: laborer doing farm and cannery work. Residence: San Joaquin and Sacramento valleys in California for three years. Birthplace: Philippine Islands, where he lived until he came to the United States. Family history: mother dead, cause unknown; father well and working on his farm in the islands. Personal history: had some of the diseases of childhood, denied venereal infection. Present illness: about four weeks previous he began to cough and expectorate; he had taken many drugs and asked the aid of several physicians, with no relief.

Examination.—Male, 5 feet tall; weight, about 115 pounds; cheeks pinched; conjunctiva red and infected; tongue coated and breath very bad odor; pulse, 105, temperature, 101. Lungs, impaired resonance in both apices, with scattered moist râles throughout. Heart, normal. Abdomen, normal. Urine, normal. Stools found to be negative. Blood examination for Wassermann, negative. Sputum examined for tuberculosis, negative. Blood: red cells, 4,240,000; hemoglobin, 45 per cent; total white, 15,000. The only localized lesion at the first examination was an enlarged gland over the middle of the right clavicle which was red, edematous and very painful.

Treatment.—Rest in bed, the bowels regulated and diet given of milk, eggs, and plenty of fluids. On November 28, 1927, the gland was opened under local anesthesia, drained and packed. The typical characteristic fluid was present. The wound was dressed daily and irrigated with metaphen and packed with iodoform gauze. The swelling diminished, but the sinus remained and continued to drain. On December 4, 1927, the patient was afebrile several days following an intravenous administration of 2 per cent mercurochrome solution, 20 cc. On December 8, the large toe on the left foot swelled and was very painful; this swelling was opened and the same treatment repeated as in the gland.

On December 16, in the region of the upper extremity of the right ulna on the dorsal aspect a swelling occurred and was opened with the same result as in the others. On December 20, in the region of the upper extremity of the left tibia a painful enlargement occurred. Like the others, it was opened and treated. On December 30, a swollen area over the left sacro-iliac was incised and a large quantity of pus obtained.

The patient from this date and to the 25th of January, when he was removed to the Sacramento County Hospital, continued to get worse. His emaciation increased; he became more asthenic, and despondent. All of the incised wounds continued to drain. We tried various medications, iodids, mercury, mercurochrome and salvarsan with no improvement. The local treatment consisted of daily irrigations of salt solution, metaphen, silver nitrate, and bichlorid of mercury. After tuberculosis was excluded, syphilis was eliminated. When I decided that the case might be some tropical disease, I asked the California State Board of Health for assistance. Doctor Halliday, who was sent by the State Board, first saw the patient on January 15, and made a provisional diagnosis of coccidioidal granuloma. Laboratory examination confirmed the diagnosis. This portion was from Doctor Halliday's report.

The following is made from Doctor Halliday's⁶ laboratory investigation:

Cultures from the contents of the lesions grew rapidly on plain and blood agar and in broths, as typical moulds. Stained slides showed hyphae with chlamdospores and mycelial threads. The blood cultures taken on January 5 in glucose broth showed globoid bodies or yeast-like forms on January 20. Transplants made on plain agar and in broth showed no growth in two weeks' incubation. Swabs were made by Doctor Walters on January 23 from broken down bone lesions: direct smears were negative, but the cultures in plain agar and in broth produced a typical mould like a growth contaminated with *Staphylococcus aureus*.

On February 7, at the Sacramento County Hospital, the sinus on the dorsal surface of the left hand was aspirated and 4 cc. of a thick bloody pus removed. Examinations of wet smears of this pus showed the presence of typical double contoured capsules of *Coccidioides immitis* containing spores. Some of the capsules were broken and endospores freed. Cultures were made on February 9 on cystine agar, hormone agar, hormone broth, and plain agar, and when examined on February 14 showed mould-like growth similar to the other cultures, but the cystine and hormone agar gave a much more luxuriant growth than the plain agar. A second blood culture was made on February 14 by Doctor Barrette of the Sacramento County Hospital; subcultures have been made, but it is too soon to make an examination at the time of this writing.

X-Ray Examination.—X-ray pictures taken on January 25 at the Sacramento County Hospital show the findings here noted. Chest: there is a mass projecting upward toward the right from the superior mediastinum. The diaphragm line at the right base is obliterated and there is considerable grayness in the region due to infiltration in the lung; the left lung is negative. Heart is normal; liver and spleen are normal. There is an erosion of the iliac side of the upper end of the left sacro-iliac joint. An area of destruction of the distal end of the shaft of the right fifth metacarpal bone is associated with considerable periosteal reaction. The lesion of the distal end of the second metacarpal bone and the fourth left metacarpal bone are associated with marked periosteal reaction. An area of erosion is present on the cancellous portion of the lower end of the left radius about 1½ cm.; the lesion is accompanied by periosteal proliferation.

CASE 2.—On December 4, 1927, I saw my second case. Filipino, male, 24 years old, laborer. Owing to inability of the patient to speak English I was unable to get a history. He presented himself to me at my office complaining of a sore on the left side of his neck; this had been incised by a physician in Bakersfield. He had a cough, was expectorating, and there was a mass about three inches long and two inches wide bulging, with two sinuses discharging the same material as in the case reported. This patient did not return to the office.

CASE 3.—On February 11, 1928, I feel sure I saw another patient with this disease. Filipino, male, 45 years old, laborer. Had a swelling on the dorsum of the right hand. I opened it and obtained the same material as in the case report. He was coughing and, like Case No. 2, failed to return for further treatment or observation.

I wish to take this opportunity to thank the State Board of Health and Dr. C. H. Halliday for their courteous coöperation.

Dinuba.

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BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

URINARY RETENTION—CATHETER LIFE VERSUS OPERATION

Miley B. Wesson, San Francisco.—Every sufferer from urinary retention is entitled to an operation to relieve his obstruction, providing his general condition will warrant it; the age of the patient and the length of time for preparation are of secondary consideration. However, no patient should be subjected to the risk of an operation unless there is more than a 50 per cent chance of a good result. If he has only a choice of spending his last days in a hospital as a postoperative patient or living a fairly comfortable catheter life at home, all will agree that the latter is preferable.

Indications for prostatectomies are fairly well standardized, and any competent surgeon can do a suprapubic prostatectomy. The mortality depends upon the pre- and postoperative treatment, and this fact is not known to all, as indicated by the technically perfect operations that are followed by deaths from uremia and hypostatic pneumonia.

It has only been a comparatively few years since all old men with benign prostatic hypertrophies were condemned to a catheter life. A more or less careful study of statistics has resulted in the general acceptance of the theory that two years is the average extent of a catheter life because of the secondary renal infection. However, there are spectacular exceptions; the first catheter case that I ever saw was an old man of seventy who lived in the Ozark Mountains of Missouri. His catheters were hung in the sun on the back of the woodshed, for it was there that he used them. His technique was simple, but vicious. When he wanted to empty his bladder he merely took his catheter down from the nail on the woodshed, spit on the end of it and then inserted it. Occasionally he dropped the catheter on the urine-soaked ground, but that did not bother him unless it became muddy. The family doctor's technique was practically the same except that, in place of using saliva as a lubricant, he used the vaselin jar from the family medicine chest. Instead of promptly succumbing to a renal infection, the old gentleman lived an active life until the age of eighty-one, when he died of pneumonia.

Catheterization is dangerous in patients who have large uninfected residuals of urine, as infection always follows and too often prompt exitus from pyonephrosis. Catheterization is also dangerous in cases of retention of spinal cord origin whether due to trauma, syphilis, or other nervous lesions. It is hard to convince some doctors that broken-back cases should never be catheterized since paradoxical incontinence develops within twenty-four to sixty hours, without any untoward

effects. Such cases do not die from the broken back, but from the renal infection secondary to the catheterization.

All cases of retention with symptoms due directly or indirectly to bladder-neck obstruction, that cannot be converted into good operative risks because of pulmonary or cardiac lesions, etc., should be placed upon a catheter routine. A not uncommon problem is the man suffering from a complete retention due to a median bar and complicated by a large vesical diverticulum and an aortic aneurysm, or similar constitutional complaint. He can weather a Punch operation and resume voiding, but cannot stand the diverticulectomy, which would relieve him from all urinary disturbances. Hence his urinary frequency will persist and in order to insure unbroken sleep he may have to be catheterized each night.

No patient should ever be catheterized unless there is a definite indication for it, and routine catheterizations are criminal in cases that can be successfully relieved by operation.

* * *

Franklin Farman, Los Angeles.—The relief of chronic urinary retention by catheter should be reserved for the extremely "poor risk" patient and for the inoperable case of cancer of the prostate.

The extremely "poor risk" patient is one in whom the expectancy of life is limited to months instead of years. Mathematically speaking, a "poor risk" is one in whom the phenolsulphone-phthalein output remains repeatedly under 10 per cent, with a corresponding sustained increase in the nonprotein nitrogen of the blood to 80 mg. or more. Likewise a continuous low specific gravity of the urine, around 1.010, indicates grave renal impairment.

Catheter life in inoperable cases of cancer of the prostate gives relief and comfort, and may be continued indefinitely until the "growing cancer" has blocked the urethra, then cystostomy is indicated. Any case with metastasis certainly is inoperable.

Operation for prostatic enlargement carries with it a mortality of around 5 per cent, and in selected groups of cases the mortality should not be more than 1 or 2 per cent. There is no operation in men of advanced age that restores health more satisfactorily than prostatectomy. This is due to the permanent relief of urinary retention, detoxication of the entire system, restoration of the function of urine secretion and elimination, lowering of the cardiovascular tension, and increase in the vital or nerve force.

In view of the low mortality and of the permanent good results of prostatectomy, almost

every case of chronic urinary retention caused by prostatic obstruction should be entitled to surgical relief unless definitely contraindicated after proper clinical and laboratory study. Fewer "old men" would resort to a hopeless "catheter life" if their medical advisors thoroughly understood the present-day safe operation of prostatectomy.

* * *

Robert V. Day, Los Angeles.—Doctor Wesson has brought an important subject to our attention. He has covered the subject thoroughly and has left little to add. I wish to stress, however, the importance of, and the great benefit derived from, the instillation of a nonirritating silver compound, namely, a 5 per cent solution of argyrol. Wherever there is stasis in the urinary tract the presence of a nonirritating silver salt prevents, or at least tends to minimize, the chemical trauma from ammonium carbonate formed in the urine as a result of stasis and infection. This can be further enhanced by the instillation of an amount of light mineral oil somewhat greater in quantity than the amount of residual urine present in a given patient. The oil floats on top and, as a consequence, the residual will consist almost entirely of oil which cannot decompose as does urine. A small amount (one per cent) of eucalyptol added to the mineral oil tends further to keep the urine reasonably clear. This does not prevent, however, a progressive change in the kidneys and bladder wall, due to the continued back pressure from obstructions.

* * *

Albert Manson Meads, Oakland.—Starting with the axiom that no prostatectomy should be an emergency operation (except in cases of severe hemorrhage), we have classified all cases of hypertrophy of the prostate gland into three groups:

1. Those that are, at the first examination, definitely operable.
2. Those that are questionable.
3. Those that are definitely inoperable.

In order to avoid, as far as possible, any unpleasant surprises all three groups are subjected to close study over a definite period of time. Even Group 1 is put on a catheter probation for a few days, and a recheck of the renal function done under conditions of decompression. Occasionally with this procedure we find that we will have to reclassify some of the candidates for operation. The majority of our cases are found to occupy Group 2. It is out of this group that modern urological methods are reclaiming many who a few years ago were absolutely inoperable because of the insidious damage done to the kidneys over the long period that usually exists from the time that the first symptom is noted by the patient to the time that intelligent treatment is instituted. Careful preparation with the inlying catheter or suprapubic drain usually brings the renal function and the patient's general condition up to within safe operating limits. The patients in Group 2 can then be reclassified as Group 1. In Group 3 are the apparently inoperable cases which, however, demand relief. Not infrequently we find that we have erred in judgment in classi-

fying a patient as inoperable, for a small number of these cases respond in a spectacular way to decompression and proper hygiene.

Doctor Wesson and Doctor Farman have stressed the importance of operation and the excellent results obtained in the majority of cases. I wish to emphasize the fact that there is a definite operative mortality as high as 20 per cent or more where statistics are taken from general hospitals, irrespective of the operator. The better the preparation along all lines the lower the mortality in equally skillful hands.

Unless we can promise a man a reasonable chance of a longer and happier life by operative procedures we do not hesitate to recommend a catheter. It has been our experience that the inlying catheter worn continuously is safer than intermittent catheterization by the patient himself. It has been our routine to change the catheter once every five or seven days, teaching the patient to irrigate himself daily with mild antiseptic solutions. We have several cases at the present time under this treatment who have either refused operation or are inoperable. They rapidly become accustomed to the catheter and are able to pursue their routine with practically no discomfort. With this procedure we feel that we have definitely lengthened the lives of many and relieved them of considerable pain.

The choice of operation often is a matter of consideration. The Punch operation can be used only in a very limited group, often with brilliant results. The suprapubic route is the most popular, and certainly gives an easy approach and a large field to work in, but the perineal approach, as far as our experience is concerned, is easier on the patient and is chosen by us whenever we are in the least doubt as to the ability of the patient to stand operable procedures. With us at least, during the first three days after a perineal operation, the patient's reaction is less severe than in the suprapubic type and the mortality definitely lower.

* * *

Roger W. Barnes, Los Angeles.—A decision regarding the method of treatment to be used in any case is reached after consideration of the paramount question, "Which will prolong life the longest with the least discomfort?" Given a case of urinary retention, the first procedure is to make an accurate diagnosis of the cause of the retention. In men over fifty years of age, bladder-neck obstruction, either by contracture, median bar, or new growths of the prostate, is the most common cause of urinary retention. Nevertheless paralysis of the bladder due to a central nerve lesion may be present, either complicating the bladder-neck obstruction or as the sole cause of the urinary retention. In such a case surgery is out of the question, and the patient is put on a catheter life if there is discomfort from the retention or urinary infection, or left alone if there is no discomfort or infection.

There are causes of urinary retention such as urethral stricture, acute prostatitis, stone in urethra or sphincteric spasm in which the question

of catheter life versus operation does not enter, but as any of these conditions might be present in men of prostatic age, they must be considered when dealing with a case of urinary retention at this age.

The operative procedures for relief of urinary retention are, with but one or two exceptions, limited to cases of obstruction at the bladder neck and are of two kinds, palliative and curative. The former consists of a permanent suprapubic cystostomy, and is indicated in cases which are difficult or impossible to catheterize or are in constant distress from urinary frequency or dysuria; which are physically unfit to weather a curative operation; and those in which a far advanced prostatic malignancy is present. Curative surgery is the complete removal of the bladder-neck obstruction, and consists of the Punch operation for bladder-neck contracture and median bar, or prostatectomy, either suprapubic or perineal. This type of treatment is indicated in all those cases which, by careful preparation and examination, are found to be physically fit to go through such an operation without casualty. As has been emphasized in the preceding discussions, proper pre- and postoperative care is the greatest factor which has decreased the mortality rate of bladder-neck surgery, and without this specialized pre- and postoperative care this type of surgery cannot be done successfully. As has also been emphasized in the preceding discussions, it is possible with present-day laboratory facilities to determine to an accuracy of 95 per cent which case is, and which case is not fit for curative surgery. When these conditions are met, *i. e.*, proper pre- and postoperative treatment, and proper, complete pre-operative examination of the patient, the mortality of bladder-neck surgery for benign conditions is not more than 5 per cent.

After consideration of the above, catheter life is left for the patient who, after careful preparation and examination, is found to be unfit for surgery, and the patient with far advanced malignancy of the prostate who can be catheterized and who is not in constant distress from frequency and dysuria.

The College of Medical Evangelists of Los Angeles—Its Cosmopolitan Student Body and Its High Standing and Unusual Record.—The College of Medical Evangelists, located in southern California (the work of the first two years at Loma Linda, near Redlands, and that of the last two years at Los Angeles), is unique in many ways.

It is owned and financed by a small evangelical denomination (Seventh Day Adventist) with the express object, as implied in its name, of preparing scientific doctors of medicine to devote unselfishly their lives to bettering the lot of the millions of men and women in non-Christian lands who so sadly need medical care. That this is a most altruistic and laudable purpose will be readily admitted. In fact it is the only school teaching scientific medicine in the United States emphasizing those phases of the life of the Great Physician concerning the healing art.

The graduates of the College of Medical Evangelists are to be found scattered all over the world. They are at work in the vast territories of China, from the borders at Tibet to the Yellow Sea. Numbers of them

who might be living in their homeland in comfort and affluence are burying their lives in the furrow of earth's need in remote districts of the great empire of India. They are to be found dotting the but little known fastnesses of the Dark Continent of Africa, on the utmost borders of civilization, and in this way treading in the footsteps of the great Dr. David Livingston, who so nobly gave his wondrous life for the dusky sons and daughters of that then unexplored land.

It is interesting to note that more students from overseas attend the College of Medical Evangelists than come to any other college of medicine in this country. In the roster of its student body it registers men and women from India, Africa, Australia, New Zealand, China, Japan, and the islands of the seas. The last statistics published by the Council on Medical Education show thirty-nine students from foreign shores at present attending this school, almost double that of its nearest competitor in the United States in this respect, the numbers in all the others being quite insignificant.

In the matter of attendance it is far from being a small institution, having admitted to its freshman class this year 114 students, and having a total enrollment of 372.

There are only approximately twelve medical schools in our country which require the intern year, withholding the degree of Doctor of Medicine until the fifth or intern year has been completed. The College of Medical Evangelists, along with the medical schools of the Universities of California and Stanford, is one of this group of pioneers in this move for better and more thorough training of our doctors.

While the College of Medical Evangelists is not a part of or connected with any great university, it has nevertheless accomplished some quite well worthwhile achievements.

It sends more of its men to take the Triple Qualification Board of Scotland, which admits those holding its certificate to practice anywhere within the confines of the British Empire than any other medical college in the United States.

It is the pioneer and only medical college in the United States that has adopted and successfully carried forward what is known as the "co-operative plan of education," made famous by the School of Engineering of the University of Cincinnati and Antioch College, Ohio. In a way this plan is a revival of the old "preceptor method" of medical teaching concerning which so much has been said and written of late. The students, during their freshman and sophomore courses, are in school during practically the entire year. They are divided into two sections of equal size. While one section is pursuing its medical studies in the school the members of the other are obtaining a practical experience in the more humble duties of the healing art in hospitals, dispensaries, clinics, and physicians' offices scattered throughout the state.

Recently one of its graduates took first place on Part II of the National Board of Medical Examiners, and was followed shortly after by another who took second place, while its record on the California State Board has been very creditable.

University of California College of Dentistry Receives Grant.—The American Society of Orthodontists has made a second grant of \$3000 to the University of California College of Dentistry for a continuation of the study in the field of orthodontics, begun in October, 1927. The experimental work is being done on monkeys, under Professor John A. Marshall, in the Hooper Foundation for Medical Research and the college of dentistry of the university. The advisory committee includes Professor Karl F. Meyer, director of Hooper Foundation; Dr. Albert E. Ketcham of Denver, Dr. James D. McCoy of Los Angeles, and Dr. Allen H. Suggett of San Francisco. —*Science*.

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EDITORIALS

PROPER PUBLICITY NEEDED FOR SERVICES IN MEDICAL CHARITIES

In late years it has become quite a vogue in some states to promote projects which are designed to reach citizens and start them on the way to better health and long life. A considerable number of such better health promotions and clinics are sponsored by well-meaning individuals with only a limited knowledge of the problems which they are certain they can solve. Occasionally the motivating personalities behind the movements are individuals who, under the cloak of philanthropic or altruistic endeavor cover their own mercenary and self-seeking aims. Both types of exploiters are often enough met with nowadays, to make thinking members of the medical profession somewhat wary when they are approached for co-operation.

* * *

Preliminary Investigation of Proposed Medical Charities.—Medical men should investigate such projects. As a matter of fact it is quite proper that physicians should insist that promoters of medical charities give a full explanation of plans and motives, before receiving promise of medical support. It is meet that we should do this because in most of these movements it is the doctors who day in and day out, week after week, and month after month, give not only the major contributions

of service, but who as donors often receive the least thanks and appreciation.

It is well for us to give whole-hearted support to all sound measures which make for a better race and civilization, but it is also well that in so doing we remind our lay fellow citizens in terms which the latter understand, what is the value of the contributions we make.

* * *

Services Should be Translated into Terms Understandable by the Laity.—Sad as it may seem, and distasteful as it is, it remains true that the lay world, in matters of charity, appreciates values most when they are expressed in terms of dollars and cents.

It is interesting to look through the printed reports of medical charities, such as hospitals, dispensaries, and clinics, and to read the names of donors who have given all the way from goodly sums of money down to those who donate a box of jellies or some blankets or kitchen utensils. And to note also that as a rule no mention is made in such a report of the money value of the professional services rendered by members of the attending medical and surgical staffs.

The following question therefore suggests itself:

"Would it not be a wise procedure for all members of the profession who are identified with such medical charities to add to the statistical report of numbers of patients seen and treated, one or two explanatory paragraphs in which the money value of the services so donated would also be indicated?"

* * *

Professional Service Money Values in One Large County Hospital.—From our own experience we know that at first thought such a method is somewhat repugnant to one's finer sensibilities. In a service in one of our large county hospitals (Los Angeles) it took us more than a score of years before we could persuade ourselves to exploit the money figures involved in the services of more than a hundred able colleagues. After much questioning, we were convinced that it was the proper thing to do, and we have been using with sufficient frequency the total of \$500,000 yearly (a conservative and modest estimate of the professional services rendered by the attending staff at the Los Angeles General Hospital) until the mention of this vast donation is almost becoming an irritant in some quarters. But that is precisely what is desired—to make lay fellow citizens appreciate the stupendous generosity of members of the medical profession.

* * *

Super-Modesty Promotes Indifference, Where Appreciation Should be Shown.—We live in a day and generation when it is necessary not to boast of one's good deeds, but when, if we would be decently appreciated and supported it is at least desirable that fellow citizens, both the indigent

and nonindigent, should appreciate the services which are so efficiently and generously given to medical charities by members of our profession. It is because we have not made the better class of lay fellows sense the nature and value of our services to the poor that we receive such indifferent support from public opinion, when the very foundations of legitimate standards of practice in the healing art are assailed.

It is gratifying to do good, but it is also wise to be sensible to the extent of making these lay fellow citizens appreciate somewhat of our goodness. To do good and then be assailed by incompetents or faddists and to have little or no support from lay fellows who should take up the cudgels of defense, in sheer decency of appreciation of the profession's altruistic services rendered to the community, is certainly not a creditable state of affairs, nor is it necessary. It will cease when we make our lay fellows of understanding and influence, appreciate what we are doing. They will better sense the good work we do when we talk in their language. There is an old saying that "money talks." That may or may not be true. But it is certainly a fact that long lists of treatments and operations mean little to the laity unless transformed into their money values.

The thought here brought out is presented to colleagues who hold staff memberships in medical charities, for whatever value it may have to them. If there be a better method of approach for securing proper lay understanding, appreciation and coöperation in these important matters, the suggestions will be welcomed.

ATHLETES NOT INVARIABLY LONG-LIVED

A very interesting study and analysis has been presented by L. I. Dublin, one of the statisticians of the Metropolitan Life Insurance Company. It deals with the life expectancy of some 4976 college athletes in some ten leading American colleges (Yale, 1059; Harvard, 938; Cornell, 910; Amherst, 453; Dartmouth, 449; Wesleyan, 364; Brown, 342; Massachusetts Agricultural, 194; Tulane, 138; Williams, 129; total 4976).

The sports with which these athletes were identified included: baseball, 1111; crew, 576; football, 1233; track, 1076; two or more sports, 822; minor sports, 158.

Special Purpose of the Analysis.—The special phase of the analysis centered on college men who had graduated in 1905 and earlier, in an effort to approximate the span of life in such persons once middle life had been reached.

Among these 4976 athletes there were 1202 deaths, which was equal to 93.2 per cent of the Medico-Actuarial table. That table represents so-called standard lives from all strata of society as against a selected type of risks which college athletes practically are, because of the presumably

better stock and kindlier economic environments of childhood years.

* * *

Causative Factors in the Mortality.—Of the 1202 deaths which occurred in this group of college men, accurate knowledge of the causes of what might be called the premature deaths could be gathered in only 566 cases, but this latter figure represented a fair cross-section of the total mortality involved.

Tuberculosis was the disease most frequently encountered among the younger individuals who were included in this premature mortality. Pneumonia, typhoid and accidents also were frequently encountered in this younger group.

Of the 315 men who died after the age of forty-five, a total of 101, or 32 per cent, died of diseases of the heart, as against a 20 per cent average in carefully selected insured lives from citizens at large. These last are very significant figures.

* * *

Training Methods May be at Fault.—This higher mortality suggests that training methods of some decades ago may have been at fault, and that the whole system of athletic training might well undergo a rigid readjustment.

Dublin in his concluding comments calls attention to the fact that we no longer look upon individuals of large frame and build as the most favorable insurance risks. As a matter of fact it seems that very often small and physically undeveloped people have a longer life expectancy than their seemingly more robust brethren. Much along the same line is the proven fact that the female sex has a longer life expectancy than the male sex.

Dublin's monograph is more than interesting, and suggests further lines of investigation that should be of value, not only to future college men who go in for athletics, but for young men in all stations in life who take up athletics in order to promote the development of sound bodies.

Presumably something more than extra physical exercise at one period of life is necessary as a firm foundation for long life expectancy. At any rate the supervision and skill which are required to properly train young men for athletic and associated purposes evidently demand a high degree of knowledge and good judgment.

* * *

A Current Example of the Above.—After the above had been written and gone to press, an item was printed in Brisbane's column on August 21, which is so apropos and so excellent an example to the conclusions reached in Dublin's article, that it is here reproduced:

"William F. Donovan, known to five generations of Harvard men as 'Pooch' Donovan, is dead of heart disease, only sixty-three years old. Donovan liked to show fast young sprinters that

he could beat them and to show football players how they should do their work.

He is dead too early, and overdoing athletics is responsible. Don't strain your heart; you can't buy new parts."

MEDICAL RESEARCH AND PREVENTIVE MEDICINE

In this issue of CALIFORNIA AND WESTERN MEDICINE are printed two papers worthy of special comment in that they present the viewpoint of men whose work gives them exceptional opportunities for broad outlook in their respective fields. The one paper is by Dr. K. F. Meyer, director of the Hooper Foundation for Medical Research, University of California, and the other is by Dr. Wilfred H. Kellogg of the division of preventable diseases, California State Board of Health.

In contrast to the majority of papers which appear in this and other medical journals, the presentations made in their articles deal with medical activities somewhat dissociated from the routine of daily hospital, office or bedside practice.

The titles of their expositions of activities and progress in their special fields do not mean that they discuss philosophical or theoretical medical matters that are far removed from actual practice. On the contrary, the problems which they present to us have so intimate a relation with daily practice, that without our understanding of them and others of similar nature, there would be but little advance in so-called practical medicine.

* * *

Research in Medicine on the Pacific Coast During 1927-1928.—Doctor Meyer gives a list of current researches and achievements by investigators connected with Pacific Slope institutions that should make every citizen in these states be proud of the record of work so well done. It will be a revelation and almost a shock to many readers of this journal to note the quantity and quality of this research output that so unceasingly and so modestly is so efficiently carried on by medical and associated colleagues in order that more exact facts may be added to the store of knowledge that gives to medicine so much of its real basis as a science.

* * *

Major Groups of Research Which are Considered.—The four divisions under which research is considered by Doctor Meyer show what broad fields of work have been covered by these Pacific Coast investigators. Some of the items will be here noted.

Group Dealing with the Nature of Parasitic Causes of Disease.—In the study of leprosy one of the Hooper Foundation students was sent to Hawaii to continue his studies. Tuberculosis was marked for special work on the tubercle bacilli. Undulant or Malta fever has attracted attention in an effort to find means of better combating the serious menace to our dairy and cattle herds brought about by the spread of *Brucella abortus*,

the bacillus responsible for infectious abortion in bovine animals. The protozoan parasites were also discussed.

Research Into the Nature of the Causes of Other than Infectious Diseases.—Here vitamins, diets and growth, lactation and vitamins, paralysis and vitamins were considered. The 1927 outbreak of mussel poisoning in the bay region near San Francisco was made the subject of special study. It may be added that upon the results of those investigations the State Board of Health promulgated its rules having to do with the collection and sale of mussel fish.

Fundamental Investigations Dealing with Biological Phenomena.—Here studies of hypersensitiveness, anaphylactic shock, overdosage of tuberculin, compensatory hypertrophy, recovery oxidation after muscular exercise and other subjects were discussed.

Research in the Treatment of Disease.—The three foregoing divisions of research dealt with knowledge that makes for a broad perspective and vision of practical workaday problems and the researches are therefore of interest to all physicians who would keep themselves abreast of the times.

Doctor Meyer's fourth division deals with treatment factors. Here topics such as buccal infections, bismuth and syphilis, cancer, low protein and liver diets, subcutaneous blood transfusions, salicylates and ephedrin and morphin substitutes were taken up.

* * *

Thanks of the Profession Due These Research Workers.—It is not possible to read the digest presented by Doctor Meyer without sensing how much of the good results in the daily practice of physicians depends on these coworkers in laboratories and hospitals. It is to be regretted that the same orientation cannot be brought to lay citizens. If they did there would be far fewer lay disciples and adherents to cultist and pseudophilosophical schools of healing.

* * *

Problems of Preventive Medicine.—Dr. Wilfred H. Kellogg of the bacteriological laboratory of the division of infectious diseases of the State Board of Health introduces the subject-matter of his paper with some very interesting historical and philosophical observations which have a bearing on the items later taken up.

He cites yellow and typhoid fevers, cholera and bubonic plague and infantile conditions as examples of disease scourges in which man has or can maintain the position of supremacy if he will but use the facts already proven. The difficulty at times, is to secure adequate lay coöperation in the work.

* * *

Bubonic and Pneumonic Plague.—For instance, in 1924 the city of Los Angeles had a serious scare because of a pneumonic plague outbreak in its Mexican quarter. Fortunately one of the initial cases was recognized early (the story of the recognition of the *Bacillus pestis* in one of the first

patients by a laboratory colleague, Dr. Mona Bettin of Los Angeles, is a story all its own, and is reserved for narrative on a future occasion.) At that time the state and the county and city spared neither effort nor money to combat this menace that would have meant a quarantine to Los Angeles and its port.

How different the stage settings, however, once the immediate scare is past! On several previous occasions mention has been made in this journal of the efforts to secure a rat-proofing building ordinance for the city of Los Angeles. After several years' effort, and in spite of an educational campaign among presumably influential elements of the community, the proposed ordinance is still in Council Committee. It is the old story—that once the immediate danger of a scourge having possibilities of death and vast economic loss is seemingly over, then there is not only noncoöperation, but actual opposition to sane preventive measures. Fortunately in this instance, the record of the medical profession is clear, and in the event of a recurrence the blame will rest on the city officials and those civic organizations and agencies which have failed to do their part in educating an appointed building commission and an elected city council into the seriousness of this plague menace.

So that while the bubonic plague may be a disease that is splendidly handled by the Federal and state governments, it must be acknowledged that in municipalities sane preventive measures are not easily adopted. However, the proponents of the rat-proofing building ordinance for the city of Los Angeles, do not intend to let the matter rest, even though the proposed ordinance is opposed by a peculiar political situation that makes success at the immediate moment seemingly out of the question.

* * *

Examples of Difficult Problems in Disease Prevention.—The facts presented in the preceding paragraph would suggest that, in California, bubonic plague might be placed in this group of difficult problems. The analogy with the malaria situation in the Sacramento Valley as outlined by Doctor Kellogg is evident.

What Should be Our Attitude Regarding Smallpox?—A less good analogy exists as regards smallpox and compulsory vaccination. So much has been written concerning the efficient manner in which vaccination protects from smallpox, that in this day and generation it seems inconceivable that intelligent persons could object thereto. Yet such is the power of pseudophilosophical and cultist groups that it is useless to argue. For himself as an individual, the writer of this column in recent years has revamped his attitude on this question. Formerly he was an ardent adherent of compulsory vaccination. Now he believes this is one of the diseases toward which the medical profession can limit its educational work to dignified presentation of world statistics on the value of vaccination; coupled with statements that the

medical profession believes vaccination to be safe and efficient protection against smallpox, and that all citizens are advised to avail themselves of the procedure. Of course, the clients of physicians should be especially urged to have vaccination done. Then when smallpox comes, physicians, their families and their clients will have protection.

Those who hold that smallpox is a disease existing in the imaginations of physicians will have an opportunity to prove the correctness of their theories. For himself, he believes that after the smallpox epidemics which are certain to occur in California, if the antivaccinationists are victorious (a large nonvaccinated population combined with nonvaccinated Mexicans to bring the disease to them), we shall have a sufficiently large number of nonvaccinated smallpox survivors, whose pock-marked faces on the streets will go far in keeping others from exhibiting similar foolishness in the future.

* * *

Doctor Kellogg's presentation of factors antagonistic to effective disease prevention, of unsolved problems and of future progress in preventive medicine, and of the part which medical men should play in disease prevention is of interest and worthy of earnest thought. Readers of CALIFORNIA AND WESTERN MEDICINE are urged to mark these two articles for perusal.

COUNTY MEDICAL SOCIETY MEETINGS—SCIENTIFIC AND SOCIAL PHASES

Perusal of the reports of county medical societies of the California Medical Association, as they appear in CALIFORNIA AND WESTERN MEDICINE from month to month would indicate that more and more of the component county societies are appreciating how valuable it is to local medical organization and work, when members convene and not only discuss scientific topics, but at the same time break bread one with the other, drop formalities, and welcome and meet one another as brothers, coworkers and colleagues of the same guild. Such a combination of interests is much to be desired, for effective organization work rests not only on loyalty to high professional standards, but also on a solidarity that comes largely through kindly personal regard and coöperation.

It is fair to conclude that when county societies provide meetings in which scientific and fraternal development go constantly hand in hand, that in such communities narrow personal jealousies and misunderstandings will be held down to a minimum, and that the real objects of medical organization in all its phases are more apt to be realized.

* * *

Meetings after this conjoint plan are in one sense easier to carry through in the smaller than in the very large county units. Nevertheless in the smaller societies it costs just as much per member for a simple informal buffet luncheon or supper as it does in the larger units. The handicap in the larger units is that it is difficult for a single

member to contact at every meeting with every one of his fellow members. That, however, is not the primary object, for we know that our social contacts both in and out of the profession, of necessity radiate from one little group of which we happen to be a part, to contacts with other little groups, the circle of contacts, however, growing constantly larger as time goes on.

* * *

No very effective organization spirit can ever be brought into being in a club or society unless these social amenities are recognized and provided for. For when these social contacts are neglected, the larger the society the more unappealing do the general meetings become to the majority of the members; and as the months and years pass by, in such a large society, in the medical profession, for instance, a goodly number of members become indifferent to the general meetings, remain aloof therefrom, and often, unfortunately, permit themselves to believe that the only persons really interested in the meetings are those fellow members whom they credit with having so-called political or office-holding proclivities. All this is undesirable, because with such a substratum of feeling, no forward organization work, which would radiate and influence lay fellow citizens, either from the standpoint of public or personal practice, is apt to come into operation and realization.

* * *

Officers of county medical societies have important responsibilities in all this, because it is they who have been given the honor of official positions, and with the honors go responsibilities. The fundamental responsibility is to bring each component society up to a 100 per cent efficiency in its county and state activities.

County society officers who have had only limited experience in nonmedical clubs or in medical organizations should aim to follow in the paths along which in the past it has been shown most progress could be made. It is really a fairly simple proposition, this matter of providing: one, a scientific program made up of contributions by leaders among local colleagues, plus addresses from time to time by colleagues from other societies, as can be easily arranged through the office of the secretary of the California Medical Association; and two, of adding to the intellectual program those social features which play so large a part in bringing out a larger attendance at meetings, and which make for a stronger *esprit de corps* through the good fellowship that holds the members together as they chat and eat at the conclusion of the scientific program.

* * *

There is no county society that cannot well consider the inauguration of these procedures. It has been gratifying to note that the San Francisco County Society has again taken up the supper plan. Years ago the Los Angeles County Society built up a very considerable reputation of unity, based in good part on its after-meeting suppers. No matter how great the superficial difficulties may seem as regards the inauguration of these

social activities, it will be found in practically every instance that ways and means always can be found through which they can be brought into being. It is an active coöperative membership that spells real organization efficiency, and no effort should be too great for officers and members to attain the same.

RETURNS FROM PROPOSED INITIATIVES

The proposed initiatives—the full text of which was published in the August issue—failed to secure the necessary signatures for a place on the ballot. Instead of the required 91,529 signatures to the initiative on health boards and nonmedical practitioners in public hospitals, but 3620 actually were secured.

It is to be hoped that this tremendous lack of support to vicious legislation is indicative of a growing unwillingness on the part of voters to affix their signatures to petitions which are presented on the street corners and in hotel lobbies. Thoughtful voters evidently realize that initiatives are not easily repealed; that the true motive in a bill is frequently skillfully concealed in a minor clause, and that the title of a proposed initiative may easily be at total variance with the real purpose of the measure.

Old Chinese Works Reveal Drug Lore.—Chinese physicians of five thousand years ago knew the uses and physical reactions of numerous drugs of which the physicians of the western world are only now learning, according to the findings during the course of the translations of Chinese medical works by Michael J. Hagerty, translator for the United States Department of Agriculture.

"Ma Huang," known to western scientists as ephedrin sulphate, a recently developed preparation for the treatment of bronchial asthma, hay fever and rhinitis, has been used in China for more than five thousand years, and is first mentioned, Hagerty has found, in the ancient *materia medica* of Emperor Shen Hung, who reigned from 2737 to 2698 B. C.

In the course of Hagerty's translations, its use as a cure for colds is most commonly cited. Other uses for "ma huang" were in treating or curing diseases of the "five internal organs," which to the Chinese physician of early days were the kidneys, spleen, liver, heart, and lungs; to cure diseased armpits and breasts, to stop "the desire to vomit," or to induce or prevent perspiration—different parts of the plant being used for the purpose in the last case.

Colds were broken up by its use in a broth. An ancient prescription translated by Hagerty recommends its use "in the epidemic of fever due to change in weather, just as it arises on the first or second day."

The prescription, compiled during the T'ang dynasty, or between 618 and 905 A. D., advises the patient to "take one large ounce of ma huang, remove the joints; take four pints of water, boil together and remove the top scum; boil down to two pints and remove the dregs; take one spoonful of rice and beans and make a gruel. Before using the broth take a warm bath and afterward eat the gruel, put on a thick bed covering and when the perspiration comes forth there will be a cure."

Ephedrin, the active principle of ma huang, was first isolated in impure form in 1885, but it had not been dealt with completely in the Occident until 1924, and its uses are now becoming generally known. The Department of Agriculture is making a thorough study of the drug with a view toward encouraging its cultivation. It is known to grow wild in sections of California and Nevada.—U. C. Clip Sheet.

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

Urology

Vesical Symptoms.—Bladder symptoms are frequently caused by pathology in surrounding organs. A patient may complain of urgency and frequency of urination, and a complete urological examination reveal nothing; but if the rectum, uterus or other adjacent organs were examined, a pathological condition might be found, which if corrected would clear up the bladder symptoms.

All of the pelvic organs are united in one great nerve plexus and an irritation arising from one source may be reflected in such manner as to appear to originate in another. Anal fissure and hemorrhoids are the most common condition to cause reflex bladder symptoms,¹ that range from complete retention to a urinary incontinence, or from a slight frequency or urgency, to severe bladder spasm. Even a small anal fissure will cause urinary retention by reflex irritation of the vesical sphincter; and catheterization is a common occurrence following a hemorrhoidectomy. Gynecological disease may also cause bladder symptoms by reflex nervous action, but these symptoms are more commonly due to the close proximity of the diseased pelvic organs. Inflammation may extend through the bladder wall, causing cystitis with its resulting symptoms, or an infection may travel from a vaginitis, through the urethra into the bladder.² The pressure of enlarged or misplaced pelvic organs on the bladder is a frequent cause of vesical irritability. The invagination of a portion of the fundus of the bladder from pressure of an antiflexed uterus is frequently seen through the cystoscope. This condition increases intravesical pressure, and produces an urgency of urination, which is more pronounced during the day, being relieved at night when the patient is off her feet. The same symptom will be produced by pressure from a uterus enlarged by pregnancy, subinvolution, fibroids or other tumor growths. Carcinoma of the uterus or of the rectum also causes bladder symptoms by pressure on the bladder, or by direct extension of the inflammation from the tumor mass.³ This inflammation may be so intensive as to cause ulceration of the bladder mucosa which sometimes progresses into fistula formation.

A careful history of the patient suffering from bladder distress will sometimes reveal that the onset of her symptoms followed a gynecological operation. Injury to the bladder and ureters during such an operation, or radium burns of the bladder following application of radium to the

cervix or uterus are factors in the production of these symptoms;⁴ or the onset of the symptoms may follow parturition, at which time injury to the bladder or urethra occurs, forming a cystocele with residual urine,² and producing symptoms similar to those due to prostatic hypertrophy in the male; or causing a urethral stricture with its resulting bladder symptoms.

The colon is also a producer of genito-urinary symptoms.⁵ The causation and persistence of chronic pyelitis from intestinal stasis is common knowledge, and changing the intestinal flora and increasing elimination from the bowel is routine treatment for this type of kidney infection. A chronically inflamed appendix may cause bladder symptoms by reason of direct extension of the inflammation to the bladder, or may produce ureteral stricture by extension of scar tissue to that organ, or ureteral kink from adhesions.

An attempt to name every condition in surrounding organs which causes genito-urinary symptoms, or to enumerate all of the symptoms, has not been made. However, the frequency of occurrence of this phenomenon must be kept in mind when a case presenting obscure genito-urinary symptoms is being examined, so that the examination will eliminate every pathological condition of surrounding organs which may be causative of these symptoms.

ROGER W. BARNES, Los Angeles.

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General Medicine

Comments on the Most Important Type of Benign Glycosuria—The So-Called Renal Glycosuria, and the Renal Threshold.—It is now fairly well recognized by most physicians that all glycosurias are not of true pancreatic origin, in other words, the presence of urinary glucose in many instances does not depend upon

impairment of the internal secretion of the pancreas as is the case in diabetes mellitus. It is over thirty years since Klemperer called attention to an interesting familial condition which he called "renal diabetes," but which is now usually referred to as "renal glycosuria." Although there are several other well-recognized types of benign glycosuria,¹ I feel that the so-called renal glycosuria is by all odds the most important clinical glycosuria to be differentiated from true pancreatic diabetes. This differentiation is, unfortunately, often attended with difficulty even when a most careful investigation can be made, but it should, I am convinced, always be attempted.

Knud Faber, the Copenhagen internist, has been interested for some years in the metabolic problems related to this subject, and it is my intention to present briefly a résumé of his views on the benign glycosurias, with particular reference to renal glycosuria.²

The study of the organism's regulating mechanisms forms one of the most fundamental fields in physiologic research. In 1913 Jacobsen³ established what is known as the renal threshold for sugar, *i. e.*, the degree of concentration of sugar in the blood necessary before sugar will appear in the urine. In normal individuals he found that this varied between .16 to .18 per cent of blood sugar. The blood-sugar level of all individuals varies throughout the twenty-four hours, depending on the amount of sugar and starch ingested. When the alimentary hyperglycemia rises above the renal threshold for sugar, glycosuria sets in. The rise in the hyperglycemia, however, by no means corresponds to the quantity of carbohydrate ingested. Under normal conditions there is an acceleration capacity of the organism for the removal of sugar from the blood, so that glycosuria does not follow the ingestion of even large amounts of carbohydrate. Thus the blood-sugar value is kept at a suitable level by means of two different mechanisms, namely, the renal threshold, and the acceleration of the blood-sugar removal by the organism.

In morbid disturbance of the blood-sugar regulation, glycosuria occurs. The classical example of this is, of course, diabetes mellitus, which is due to impairment and reduction of the incretory secretion of the pancreas. In this disease the organism has lost the power to remove sugar from the blood when it exceeds the usual level.

On the other hand, as mentioned above, in the absence of pancreatic diabetes, glycosuria occurs in normal individuals through two mechanisms, either because of a low threshold for sugar, or because the blood sugar, after the ingestion of carbohydrate, may rise above the normal. As previously stated, it is now agreed that the normal renal threshold lies between .16 to .18 per cent, or even higher in some instances up to .20 per cent. It is found, however, that certain individuals have inherently a low threshold and a constant overflow of sugar in the urine occurs. In a certain group the threshold is only moderately reduced from the normal, and lies between .12 and .15 per cent. Clinically this represents the cyclic

glycosuria, and is characterized by the recurring presence of urinary sugar following meals, but its absence at other times.

Faber and Norgaard⁴ have made important observations with reference to the constancy for single individuals of the renal threshold, which are at variance with the opinions of most American observers. They maintain that the threshold is fixed in both diabetic and nondiabetic individuals. It varies in different subjects, but is constant in the same individual under most all conditions. The one striking exception to this rule is observed during pregnancy, when there may be a temporary depression of the threshold. They conclude "that the low threshold is an individual characteristic, a constitutional abnormal property, and the glycosuria is not a sign of any metabolic disturbance."

The second important mechanism underlying renal glycosuria is found in the disturbance in the removal of blood sugar in alimentary hyperglycemia. In the absence of true diabetes, this manifests itself by the blood sugar rising higher than normal after the ingestion of carbohydrate. Instead of stopping at about .18 per cent, as is the case usually, the blood-sugar level rises still higher to between .20 to .30 per cent. The same conditions can obtain in mild or early diabetes, but on the other hand there seems to be no doubt that such a recurring glycosuria, which is due exclusively to excessive alimentary rise, is fairly frequent and may be present for years without developing into true pancreatic diabetes. It should be pointed out that this kind of reaction to ingestion of carbohydrate presents at times the most perplexing problem in its differentiation from diabetes. This disturbance in the blood-sugar mechanism does not, however, always appear to remain as constant as a lowered renal threshold. In several cases Holst ascertained that the high alimentary rise subsequently disappeared.

To summarize then, it is seen that two essentially different forms of glycosuria exist. The first is true pancreatic disease, with impairment in the incretory function, which resides in the islands of Langerhans, and this is the morbid condition of diabetes mellitus. The second form of glycosuria is due to a deficient blood-sugar regulation, which may either act through an habitually low renal threshold, or an habitually high alimentary blood-sugar rise. On account of the extensive occurrence of nondiabetic glycosuria and the obvious difference in both prognosis and treatment from pancreatic diabetes, the correct interpretation is of the very greatest importance to the patient.

The practical significance of the knowledge of the benign glycosuria cannot be overestimated. The chief difficulty arises when a glycosuria is detected without symptoms of diabetes. In such cases it is necessary to make blood-sugar determinations. The matter to be ascertained is whether or not there is a hyperglycemia present when the patient is fasting. It is of great importance for this investigation that no dietetic treatment be begun before making this determination, other-

wise there is a great possibility of erroneous conclusions because an existing hyperglycemia may disappear. As a supplementary investigation the determination of the type of glycosuria may be carried out by determining the blood-sugar curve after the administration of a dose of glucose. American observers have emphasized the importance of the failure of the blood-sugar value to return to the normal level of about .12 per cent in the two-hour period following ingestion of 100 gm. of dextrose. This delay is seen regularly in disturbance of the carbohydrate utilization of the true diabetic type.

In the past decade, since the refinement of methods for the accurate clinical determination of the blood sugar in glycosuric patients, the idea concerning the prevalence of renal glycosuria has been considerably modified. Ten years ago it was regarded as a comparatively rare condition, but opinion has changed, and today it is known to be fairly common. In confirmation of this, J. E. Holst,⁴ in an examination of 163 applicants, who by life insurance companies were declared to be diabetics on account of glycosuria, was able to demonstrate the frequency of the benign type of glycosuria. In only 30 per cent was true diabetes the underlying cause of sugar. In a series of twenty-seven cases of benign glycosuria, which he observed for from one to twenty-five years, no sign of the development of diabetes was observed in a single instance. The importance of these facts to life insurance companies is obvious, and has been ably discussed recently by Dr. Francis H. McCrudden of the New England Mutual Life Insurance Company. With reference to medical selection in sugar cases, McCrudden⁵ concludes as follows: "The doubtful glycosuria cases are given an opportunity to submit to the blood-sugar tolerance test. In this test 100 grams of dextrose in 40 per cent aqueous solution is administered by mouth, and two hours later the sugar content of the blood is determined. If the blood sugar content at this time is .120 per cent, or less, we consider that the glycogenetic function has demonstrated its ability to stand a good load with normal response. If there is no other impairment we accept them for standard insurance."

ERNEST S. DU BRAY, San Francisco.

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Bacteriology

A Necrotizing Toxin from Pneumococcus.—

Therapeutic antisera have been generally unsuccessful except in those infections in which a strong microbic toxin can be obtained as the immunizing agent. The recent production of a powerful necrotizing toxin from the pneumococcus by the application of improved technical methods is, therefore, of general interest.

Parker¹ found that if a virulent, first-generation broth culture of pneumococcus is chilled, centrifuged, the sediment taken up in an equal volume of chilled, freshly boiled broth and immediately sealed free from all air bubbles, the sealed tubes give rise to a powerful necrotizing toxin if kept in the dark, at room temperature, for six to eight days. The preparation must be ice-cold when exposed to air, otherwise its toxicity rapidly disappears. Parker found that this toxin can be passed through a Berkefeld filter, if every precaution is taken to have the filter and receptacles at freezing temperature. She reports that 0.1 cc. of the filtrate injected intradermally into a guinea-pig will produce a necrotic area an inch in diameter.

W. H. MANWARING, Stanford University.

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Recovery Chances in Infantile Paralysis.—Definite case history evidence that infantile paralysis may be checked with little or no permanent impairment of patients, providing that treatment by intramuscular injection of convalescent serum is given within forty-eight hours after first symptoms of the disease, has just been collected by Dr. E. B. Shaw and Dr. H. E. Thelander, instructor and voluntary assistant respectively in the department of pediatrics of the University of California Medical School.

The points which they list in concluding the report are as follows: Convalescent serum administered intramuscularly is of distinct value in the treatment of poliomyelitis. The effectiveness of such treatment depends on early diagnosis and treatment, with sufficiently large, and if necessary, repeated doses of potent serum. The method, on account of its ease, safety and simplicity, may be applied in the doubtful case without waiting for confirmatory evidence, and is particularly apt to provide treatment in the early stages when much may be expected as a result of treatment. It is extremely desirable that stores of pooled convalescent serum be made available for general use and particularly that such stores be on hand prior to the outbreaks of actual epidemics.—*U. C. Clip Sheet.*

STATE MEDICAL ASSOCIATIONS

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OFFICIAL NOTICES

Council Meeting.—The next meeting of the Council will be held at the Los Angeles Biltmore, October 6, 1928.

Clinical and Research Prize Papers.—That research work is extensively carried on on the Pacific Coast is conclusively shown by Dr. Karl Meyer's article in this issue. There should, therefore, be no dearth of material for research prize papers in 1929.

Those members who desire to submit the results of such research work to the Prize Committee will find appended the rules which govern the competition. Papers dealing with clinical subjects are entered in the same manner.

The committee in charge are George Dock, chairman; Emmet Rixford and Eugene S. Kilgore. The committee has asked that more publicity be given this competition to the end that greater interest may be stimulated and that more and better manuscripts shall be entered. *Entering of papers in the Prize competition does not debar the author from a place on the annual program.* In such case the completed paper must be in the state office before *December 20, 1928.*

"Send two copies of the completed paper to the state secretary, Dr. Emma W. Pope, 1016 Balboa Building, San Francisco, before December 20, 1928, with an unsigned note that you wish your essay submitted for a prize and also read at the annual session. Sign your paper with a nom de plume. Also send your name in a sealed envelope with the nom de plume appearing on the outside. Use no stationery that in any way reveals your identity."

Any member who desires fuller instruction regarding this contest may secure the same by writing to the state office.

GENERAL RULES GOVERNING PAPERS

The Committee of Clinical Prize Awards desires to call the attention of the membership to the following rules governing the submission of papers, for the benefit of those who desire to compete for the 1929 prizes:

1. Any member of the California Medical Association is eligible to compete for the prizes. Any question arising as to the eligibility of a candidate or the admissibility of his essay will be settled by the decision of the Council.

2. Manuscripts must be typewritten on one side of the paper; they must be double spaced; and they must not be folded or rolled. Illustrations or charts must be marked on the reverse side with the title of the paper to which they belong.

3. Essays must not contain more than four thousand words. In judging a paper the committee will take into account the basic importance of the work done and its novelty; the thoroughness with which the research has been carried out; the clearness with which it has been written; and the neatness of the manuscripts and illustrations.

4. Papers should be sent, preferably by registered mail, to Dr. Emma Pope, secretary of the California Medical Association, 1016 Balboa Building, San Fran-

cisco. They should be identified by a nom de plume or motto only. A separate envelope should be sent to Doctor Pope containing the author's name and his nom de plume or motto, so that after the award is made the name of the writer can be found. Any return addresses or distinguishing marks will be removed from the wrappers before the papers are turned over to the judges.

5. All papers must be in the hands of Doctor Pope before February 15, 1929, in order that the judges may finish their work in time for the meeting of the Association.

6. The judges reserve the right to withhold the award, in the event that no paper comes up to the standards of excellence they feel should obtain.

7. If, in the judgment of the editors of CALIFORNIA AND WESTERN MEDICINE, and the editorial councilors, the paper on laboratory research is too technical or otherwise unsuitable for inclusion in CALIFORNIA AND WESTERN MEDICINE the prize winner will be allowed to publish it in some special journal and will be required to make an abstract for the readers in California.

8. Inquiries relative to the prize contest should be addressed to the chairman of the committee, George Dock, M. D., Chamber of Commerce Building, Pasadena, California.

Extension Lecture Service.—With the termination of the vacation season, county medical societies renew their usual meetings and also their calls upon the state office for speakers at their monthly gatherings. So it comes about that the yearly extension lecturers are asked to revise their programs and to be prepared to furnish talks other than those previously listed.

An invitation is also yearly extended through these columns for volunteers in this work. The service is voluntary; there is no state fund to cover the expenses of travel; it does often take a member away from his work at an inopportune time and yet those who give of their time and service make new contacts that are worth while, learn to address audiences easily, and are forced to rapid thinking and response in the discussion that regularly follows papers. Few members who have been placed upon the extension list have asked to have their names removed. Many have spoken with pleasure of their evenings with county societies.

This is fine organizational work. An active county society is the basis of a healthy state association. Whatever, therefore, calls out the members to a county meeting is an aid to the growth of the California Medical Association.

Will those members who are interested in this work and who have talks that are worth while to the general practitioner, and who are willing to be called upon occasionally to deliver these addresses to county societies, furnish their names and the subjects of their talks to the state office before the 20th of September.

COUNCIL MINUTES

Minutes of the One Hundred and Seventy-Third Meeting of the Council of the California Medical Association

Approved at the One Hundred and Seventy-Sixth Meeting of the Council

Held in the English Room of the Palace Hotel, San Francisco, California, Saturday, March 24, 1928, at 10 a. m.

Present.—Doctors Phillips, Kiger, Kelly, Gibbons, Hamlin, Kinney, Duffield, Coffey, Harris, Rogers,

Peers, Catton, Kress, Shoemaker, Curtiss, Pope, and General Counsel Peart.

Absent.—Doctors Bingaman, DeLappe, and Shephard.

1. **Roll Call.**—The meeting was called to order by the chairman, Morton R. Gibbons.

2. **Minutes of the Council.**—On motion of Kinney, seconded by Rogers, it was

Resolved, That the minutes of the one hundred and seventy-second meeting of the Council, as mailed to each member thereof, be approved.

3. **Length of Annual Meeting.**—Letter from Dr. George H. Kress regarding the number of days consumed at annual meetings was discussed. Doctor Kress stated that formerly the meetings had been held for three days, but of late years four days had been allotted, which necessitated physicians and surgeons being absent from practice six days, and pointed out that activities of the last day were not usually well attended. Members of the Council stated that they believed this matter should be presented to the Program Committee for suggestions.

Action by the Council.—On motion of Catton, seconded by Kress, it was

Resolved, That it is the sense of this Council that the annual session be reduced to three days, but that the Program Committee be advised of the view of the Council and asked for an expression of opinion and that final action be withheld.

4. **Invited Speakers—S. A. Kinnier Wilson.**—The secretary stated that the secretary of the Academy of Medicine, Dr. J. Marion Read, had advised the Program Committee at their Santa Barbara meeting that the Academy was inviting Kinnier Wilson of London, a leading neurologist, to speak before the Academy of Medicine on the Saturday preceding the date of the annual session and had suggested that the Program Committee might be interested in inviting Doctor Wilson to address one of the general sessions and also the Neuropsychiatry Section.

The Program Committee recommended that Doctor Wilson be extended an invitation to address the second general session and the Neuropsychiatry Section.

Action by the Council.—On motion of Kelly, seconded by Peers, it was

Resolved, That the Association invite Kinnier Wilson to address the annual meeting.

5. **Scientific Exhibits.**—Requests for permission to place a scientific exhibit of an x-ray study of sphenoidal sinuses at the Sacramento meeting by Lincoln Kallen was presented by the secretary.

Letter regarding an exhibit of the Langworthy Portable Elevator and Fracture Apparatus was also presented.

It was the sense of the Council that the matter be referred to the Section on Radiology.

6. **Legislative Committee.**—Letter from Harlan Shoemaker requesting that the Legislative Committee be allotted \$100 per month to pursue the necessary legislative investigations of the Medical Practice Act and other legislative questions was read. Doctor Shoemaker outlined the procedure necessary to follow pending legislation.

Action by the Council.—On motion of Shoemaker, seconded by Duffield, it was

Resolved, That the Legislative Committee be allotted \$100 per month for the expenses of the committee.

Doctor Coffey entered an objection to the use of the funds of the Association for such purpose stating that legislative work should be carried on by personal subscription. Method of checking on such fund was then discussed.

It was the sense of the Council that Doctors Shoemaker, Coffey, and Mr. Peart have a conference regarding this question. The resolution was tabled.

7. **Technical Specialties.**—Report of William B. Bowman, chairman of the Technical Specialties Committee, was read. Doctor Bowman pointed out the desirability of cordial contact with members of technical specialties, but stated that in view of the different viewpoint of laymen and the physician, it was the sense of his committee that the California Medical Association should have no official or semi-official relationship with such organization, and that the constitutions and by-laws of such associations wherein such relationship is provided for should be amended.

Action by the Council.—On motion duly made and seconded, it was

Resolved, That the recommendations of the Technical Specialties Committee be adopted.

Doctor Duffield, member of the Technical Specialties Committee, stated that at present the American Medical Association was endeavoring to compile a list of the vast number of technical specialties now existing.

8. **Industrial Medicine.**—Report of Dr. Gayle G. Moseley, chairman of the Industrial Medical Survey Committee, was presented. Doctor Moseley stated that answers were being received from the questionnaire to all county societies on the amount, character and results of industrial medicine, and that a more detailed report would be presented at the annual meeting.

It was the sense of the Council that the report of Doctor Moseley be accepted.

9. **San Joaquin County Society.**—The General Counsel stated that the time and place of hearing appeals of members of the San Joaquin County Medical Society should be fixed.

Action by the Council.—On motion of Kelly, seconded by Hamlin, it was

Resolved, That the Executive Committee be directed to fix the time of hearing of appeals of the members of the San Joaquin County Medical Society at the annual meeting at Sacramento and that the San Joaquin County Society and the individuals appealing be given due notice of such action.

It was decided to discuss the matter further at the afternoon session.

10. **San Francisco County Society.**—Letter from the chairman of the Executive Committee of the San Francisco County Medical Society was read, in which the Association was invited to hold the fall meeting of the Council jointly with the San Francisco County Medical Society. It was pointed out that it would be impractical to hold such a Council meeting and that if the San Francisco County Society desired representatives of the Council to be present, its wish would be complied with upon request.

Action by the Council.—On motion of Hamlin, seconded by Kiger, it was

Resolved, That Doctor Kelly advise the Executive Committee of the San Francisco County Society of the Council's attitude in the matter and that if there are any matters on which advice or discussion is desired, arrangements be made to have a representative of the Council present.

11. **Affiliate Membership.**—The secretary presented request from various county societies requesting that affiliate membership be granted Henry W. Miner, Blue Canyon, Placer County; Harvey W. Strader, Sacramento County; Jennie H. Anderson, San Fran-

cisco County; and B. C. Anderson, Barstow, San Bernardino County.

Action by the Council.—On motion of Peers, seconded by Kiger, it was

Resolved, That Henry W. Miner, Blue Canyon, Placer County; Harvey W. Strader, Sacramento, Sacramento County; Jennie H. Anderson, San Francisco, San Francisco County; and B. C. Anderson, Barstow, San Bernardino County, be granted affiliate membership in the State Association.

12. Physicians' Home.—Letter from the American Medical Association regarding the need of a home for indigent physicians was presented. The secretary stated that twenty-eight of the forty-eight counties had replied to the request for information on conditions within their counties and that none reported any provisions for the care of indigent physicians. Three cases of indigent physicians were reported which were being cared for in county hospitals.

It was the sense of the Council that the secretary should forward the data collected to the American Medical Association.

13. Arrangements Committee.—Dr. Junius B. Harris, chairman of the Arrangements Committee reported on the progress of plans for the annual meeting and outlined the program for the entertainment of members and guests.

14. Medical Economics.—Letter from Dr. George H. Kress regarding collection of bills rendered by physicians and surgeons for medical service was read. After discussion it was decided that it would be inadvisable to take any action in the matter.

15. Legislative Committee.—Doctor Shoemaker, chairman of the Legislative Committee, explained incidental expenses to which the committee was put in carrying on its work. It was stated that a statement of the expenditures was filed in the secretary's office.

Action by the Council.—On motion of Duffield, seconded by Kinney, it was

Resolved, That the Legislative Committee be granted \$100 per month for incidental expenses as requested by the chairman in his letter of February 3, 1928.

The resolution passed. Doctor Coffey, who had entered an objection at the time the subject was previously discussed was not present to vote.

Doctor Shoemaker then presented Senate Bill 3107, being an act to regulate the practice of the healing art in the District of Columbia for the protection of the public health, and called the attention of the Council to various suggestions and criticisms on the act by Dr. Charles B. Pinkham which were furnished at the request of the Executive Committee.

Action of the Council.—On motion of Shoemaker, duly seconded, it was

Resolved, That the annotations of Doctor Pinkham be forwarded to the secretary and president of the medical society of the District of Columbia, all Senators and Representatives of California, and to the American Medical Association.

16. Constitution and By-Laws.—Dr. William Duffield stated that as there were important matters that should come up before the medical profession at this time and as the Association had a working Constitution at the present time, he would suggest that action on the Constitution be deferred.

Action by the Council.—On motion of Duffield, seconded by Kress, it was

Resolved, That it be the sense of the Council that the matter of Constitution and By-Laws lay over for another year.

Doctor Kress stated that the two forms of proposed constitutions were different in many respects and although a new constitution was desirable, it was not vital at the present time. Doctor Phillips stated that he believed the Council should proceed with consideration of the Constitution and By-Laws at the

present time and that final decision on controversial matters could be made by the House of Delegates.

A vote was then taken on the question of allowing the consideration of the Constitution and By-Laws to go over for another year. Five ayes; seven noes; motion defeated.

Consideration was then taken on the following matters:

The question of larger representation for smaller counties was discussed, and on motion of Harris, seconded by Shoemaker, it was

Resolved, That the matter of larger representation for smaller counties be referred to the House of Delegates without any recommendation by the Council.

Discussion was then had on whether the secretary and editor should be prohibited from engaging in practice while in office. On motion of Hamlin, seconded by Harris, it was

Resolved, That the Council make no recommendation to the House of Delegates on the question of whether the secretary and editor shall be prohibited from engaging in practice while in office.

The question of whether councilors should be elected by the delegates of the district wherein they are to serve or by the entire House of Delegates was brought up, and on motion of Phillips, seconded by Harris, it was

Resolved, That the matter of election of delegates be referred to the House of Delegates without recommendation from the Council.

The question of fixing the place of the office of the Association as San Francisco was discussed. Mr. Peart stated that it was not legally necessary to include a fixed place either in the Constitution or By-Laws, but that the place of business must be fixed in the Articles of Incorporation.

On motion of Catton, seconded by Shoemaker, it was

Resolved, That the main office of the Association be not fixed.

Discussion was then had as to the manner of presenting the Constitution and By-Laws to the House of Delegates. Mr. Peart suggested that Doctor Kress embody the views incorporated in both types of constitution and by-laws in the letter to accompany the two constitutions to be forwarded to all delegates and alternates.

This provoked an informal discussion, and it was finally unanimously agreed that the chairman of the Special Committee was to present the report of his committee to the House of Delegates. Any member of the house could then exercise his parliamentary privilege of proposing any amendments thereto.

On motion of Phillips, seconded by Hamlin, it was

Resolved, That the same committee be reestablished, and that it be the duty of that committee to present to the House of Delegates such matters pertaining to the proposed Constitution as shall be considered pertinent.

On motion of Phillips, seconded by Kelly, it was

Resolved, That the reestablished committee act in accordance with the resolution heretofore adopted by the Council; that each delegate and alternate be furnished with a draft of the proposed Constitutions two weeks before the annual meeting with such arguments as are given by the committee.

Doctor Kinney stated that the San Diego members were opposed to having the method of suspension of members so involved and that he thought final decision should rest with the Council. Other members thought final decision should rest with the House of Delegates who could, if desired, form a judicial committee to act in the interim between meetings.

17. San Joaquin County Society.—The question of setting the time of hearing on appeals of members of the San Joaquin County Society was again brought up.

On motion of Phillips, seconded by Kiger, it was

Resolved, That the San Joaquin County Society officers and Doctors Griner and Thompson be in-

formed that appeals will be heard at a meeting to be held on Saturday, April 28.

It was stated that the time of hearing could then be fixed by, the chairman of the Council as Sunday. The chairman fixed 3 p. m., Saturday, April 28, 1928, as the time.

18. **Adjournment.**—There being no further business, the meeting adjourned.

MORTON R. GIBBONS,
Chairman of the Council.
EMMA W. POPE,
Secretary,

COMPONENT COUNTY SOCIETIES SAN DIEGO COUNTY

The Rees-Stealy Clinic has begun actual work on the extensive addition of thirty rooms to their present building at Fourth and Grape. This is a fine testimony to the volume and quality of service rendered by this enterprising firm. The expansion plans include the addition of several new men to the personnel of the clinic staff. These we hope to introduce to the journal readers later.

The new Scripps Metabolic Clinic at La Jolla is rapidly approaching completion, and will probably be ready for occupancy the latter part of September.

The new wing of Mercy Hospital is already roofed and will be open to the public before the close of the year. This south wing nicely balances the north wing, giving to the whole group a symmetrical appearance. This wing represents a gift by the late John D. Spreckels. It adds fifty-five beds to the hospital, thus bringing its capacity to a total of 350 beds.

ROBERT POLLOCK.

CHANGES IN MEMBERSHIP New Members

Los Angeles County.—Isak Alcazar, Long Beach; Harry H. Blodgett, Beverly Hills; George C. Burns, Washburn D. Chipman, John B. Clark, W. Hinton Drummond, Alexander V. Golitzin, James Green, Edward R. Hanlon, Orra M. Henderson, Karl E. Kretschman, Sophie Lurie, Valdemar Pleth, Ihil Rubenstein, Howard L. Updegraff, Joseph Walker, Los Angeles; Joseph P. Szukalski, Pasadena.

San Diego County.—Elmo G. Crabtree, San Diego.

San Francisco County.—Henry Clarke Davis, San Francisco.

Sacramento County.—Joseph A. Sampson, Sacramento.

Transferred Members

Paul S. Barrett, from San Mateo to San Francisco County.

Emelie A. De Eds, from San Francisco County to Washington, D. C.

Newton G. Evans, from San Bernardino to Los Angeles County.

S. W. Hastings, from Los Angeles to Monterey County.

Joseph A. Sampson, from San Francisco to Sacramento County.

T. R. Trick, from Merced to Los Angeles County.

Harold W. Wright, from Los Angeles to Ventura County.

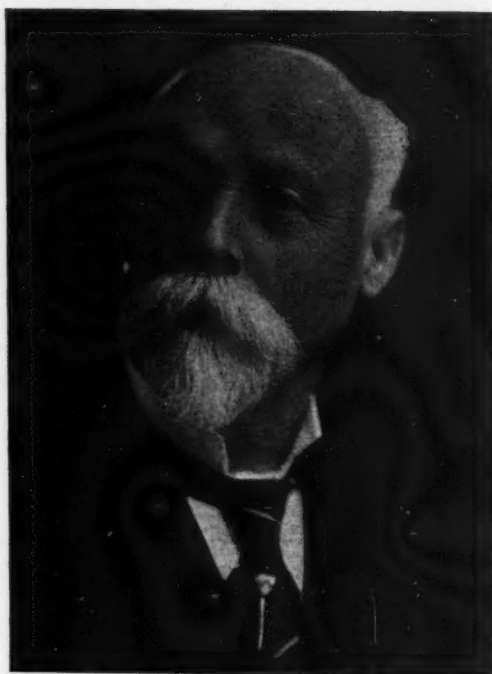
Deaths

Bagg, Charles P. Died at Los Angeles, July 29, 1928, age 62 years. Graduate of Medical College University of Southern California, 1888. Licensed in California, 1888. Doctor Bagg was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

OBITUARY

Henry Green Brainerd, born at Londonderry, New Hampshire, on May 23, 1852, died on July 22, 1928. His death was due to coronary sclerosis. For a year or more he had been suffering from angina attacks.

Graduating from Rush in 1876 it was the fortune of Doctor Brainerd to engage in the practice of medi-



Henry Green Brainerd
1852-1928

cine for more than a half century. That in itself is a longer period than comes to most of us, but that his more than a half century of practice should have been associated to a most unusual degree with a capacity for efficient and kindly service in the healing art, is what differentiates him from most of his fellows. It explains why both in and out of the profession he was loved and respected, and why his aid was sought not only in matters of medicine, but, by those who sought counsel from an ideal physician.

Henry Green Brainerd came from old New England Revolutionary stock, in which succeeding generations, through rigid self-discipline, self-denial, and unceasing struggle against the odds of a harsh environment, had battled on to successful living. His own father, Timothy G. Brainerd of Albany, New York, when a young man, rode four days from Albany to Yale College, determined to get an education. He had no other possessions than the horse that carried him. When he arrived at his destination he sold his horse and settled down to the business of working his way through school, and for four years did not return to his home. He later graduated from the Andover Theological Seminary, marrying subsequently a Lucinda Rebecca Dewey, a cousin of the late Admiral Dewey. One of the three children of this union was Henry Green Brainerd, the subject of this sketch.

The family later moved to Grinnell, Iowa, Henry Brainerd going to Dartmouth College in New Hampshire, working his way through college and then becoming a principal of a high school. In Independence, Iowa, he became acquainted with Doctor Hill, the superintendent of the State Hospital, and through him changed his outlook, and entered medicine, graduating in 1876 in the same class with his friend, the late John B. Murphy.

After graduation he returned to the hospital at Independence, Iowa, and was its assistant superintendent for a period of some seven years.

Doctor Brainerd in 1879 married Miss Alma Loomis, a sweetheart of his college days, but in 1882, when a child came to bless the union, the wife died

of puerperal infection. He went East to carry on his further studies, and while there his baby was stricken and also died. This double loss was a turning point in his life.

He could not get back into his work with any zest and decided to take a rest in California, after which he intended to return to Chicago to go into practice with a friend. In Los Angeles he changed his plans, and invested his savings. Then came the collapse of the Los Angeles boom, and what he had worked for was lost.

He went East and worked with Welch of Johns Hopkins, and afterward married Miss Fannie Howard in 1887. Two sons were born of this union.

When he returned to Los Angeles he became superintendent of the County Hospital for about four years, and almost from the beginning was a member of the faculty of the College of Medicine of the University of Southern California, taking up the specialty of nervous and mental diseases.

In 1886 on behalf of the medical faculty he organized the dental department of the University of Southern California, and was its dean from 1889 to 1902. He was also for a time dean of the College of Medicine.

He had a large part in establishing the Psychopathic Hospital and in establishing methods of handling the insane.

At different times he was president of most of the city, county, and state medical organizations. Among other honors was that of president of the California Medical Association in the year 1923.

Doctor Brainerd maintained a very real interest in matters of medical organization, and his quiet influence went far in the establishment of the things in which he believed. In recent years he gave special attention to eugenics, holding that through properly exercised birth control, much good could be done in civilization, in relieving the most needy members of society. He gave his time and purse in support of the movement, and in his will left \$30,000, the income of which was to go to the furtherance of that work.

His genial smile was known and cherished by all who contacted with him, and yet his life was filled with sorrows and trouble that come to but few men. Nevertheless he was never too tired or too busy not to be able to listen to friend or patient, and in the aid of the poor he was even more self-sacrificing than of the well-to-do.

In his practice, while he was a busy man, he accumulated but little, but fortunately some few investments that he had made turned out well, and permitted him in his will to leave bequests for purposes that were dear to his heart.

One of his colleagues, who had long been associated with him, stated that in some twenty-two years he had never heard Doctor Brainerd speak an unkind word of a fellow practitioner, nor, for the matter of that, of any person. His personal life at home and abroad was ideal, and he permitted no provocation to ruffle him or to make him indulge in harsh words.

He was a Christian whose religion was a very living and motivating factor in his life, but he was tolerant and with a breadth of viewpoint such as but few churchmen have. Never intruding his belief on others, but in his own life always giving expression to the finest standards of righteousness.

All in all he was a fine type of the old-fashioned general practitioner who was the friend and advisor of the families who came to him and whose advice was sought on both medical and nonmedical matters.

In southern California the place which he occupied in the affections of his colleagues and of his fellow citizens was unique. His death will not mean the cessation of his influence, because the goodness of his life and the spirit of service which were part and parcel of his every fiber have influenced a large number of his fellows. In working for the principles he believed in they will keep Henry Green Brainerd a living force in the community which he served for so many, many years.

H.-K.

UTAH STATE MEDICAL ASSOCIATION

WILLIAM D. DONOHER, Salt Lake.....President
H. P. KIRTLEY, Salt Lake.....President-Elect
M. M. CRITCHLOW, Salt Lake.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....Associate Editor for Utah

NEWS

Scientific Program, Thirty-Fourth Annual Session

June 29-30, 1928

The following program of scientific papers and social activities was carried out. Members who attended look back at a most pleasant and profitable meeting.

FRIDAY, JUNE 29

MORNING

Personal Experiences in Abdominal Surgical Emergencies—Isidore Cohn.

Acute Abdomen—George Thomason.

Abdominal Pain and Pleural Reflexes—Joseph A. Capps.

AFTERNOON

President's Address—Eugene H. Smith.

Treatment of Carcinoma of the Lip and Tongue—Edwin I. Bartlett.

Carcinoma of the Lung—Carl A. Hedblom.

The Story of Ethylene Gas, the New General Anesthetic—A. D. Luckhardt.

Fractures of the Humerus—Isidore Cohn.

EVENING

Diagnosis and Treatment of Infections of the Hand—Motion Pictures.

Recent Developments in the Study of Bone Tumors—Edwin I. Bartlett.

Operation for Injuries of the Biceps Flexor Cubiti—Lantern Slides—Edgar L. Gilcreest.

SATURDAY, JUNE 30

MORNING

Quinidin in Various Cardiac Irregularities, including a Safe Indication for Its Use. Moving Picture Demonstration of the Living Animal Heart Showing Various Cardiac Irregularities—Harry Spiro.

Pericardial Pain—Joseph A. Capps.

Etiology and Treatment of Pulmonary Abscess, and the Surgical Treatment of Pulmonary Tuberculosis—Carl A. Hedblom.

AFTERNOON

Report of Delegate to American Medical Association—E. M. Neher.

Surgery of the Reticulo-Endothelial System—Isidore Cohn.

Physiology of the Parathyroid Glands—A. D. Luckhardt.

The Prognosis and Treatment of Bacterial Endocarditis—Joseph A. Capps.

Surgical Pathology of Breast Conditions—Edwin I. Bartlett.

EVENING

Annual Banquet—Hotel Bigelow.

A Bicentenary Address on John Hunter and the Debt that Surgery Owes Him—Edgar L. Gilcreest.

Eye, Ear, Nose and Throat Section

Hotel Bigelow

FRIDAY, JUNE 29

MORNING

Relation of Ocular Muscles to Refraction—Joseph McCool.

General Principles in Nose, Ear and Throat Practice—Eugene Lewis.

Some Common Delusions in Connection with the Eyes—Aaron Green.

Observations on Clinics in Europe and the Orient—Fred Stauffer, Salt Lake City.

SATURDAY, JUNE 30

MORNING

Operative Mistakes in Ophthalmology—Joseph McCool.

The Ear and Hearing—Eugene Lewis.

Focal Infections in Relation to Diseases of the Eye—Aaron Green.

OBITUARY

S. D. Calonge, 1878-1928

Dr. S. D. Calonge, 49, prominent Salt Lake physician and surgeon, died Saturday, July 21, of injuries sustained in an automobile accident.

Doctor Calonge was secretary of the board of directors of Saint Marks Hospital, a member of the staff of the Salt Lake General Hospital, and a member of the Kiwanis Club. He was a member of the American Medical Association, the Utah State Medical Association, and the Salt Lake County Medical Society. He was a captain in the medical reserve of the United States Army.

He had practiced his profession in Nampa, Idaho, and in Salt Lake City for a total of twenty years. He was a graduate of the Keokuk Medical College of Keokuk, Iowa.

Salt Lake physicians served as honorary pallbearers at the funeral, held on Tuesday following Doctor Calonge's death. They were: Doctors A. C. Behle, C. M. Lindem, E. M. Neher, J. P. Kerby, G. F. Roberts, W. S. Keyting, H. P. Kirtley and R. S. Allison.

Services were conducted at the grave side by Progress Lodge No. 22, F. and A. M.

THE HOUSE OF DELEGATES

Minutes of Thirty-Fourth Annual Session

June 29 and 30, 1928

Hotel Bigelow, Ogden, Utah

First session: June 29, at noon.

Called to order by President Eugene H. Smith, of Ogden.

Roll call of delegates by secretary. Quorum present.

* * *

PRESIDENT'S ADDRESS

DR. E. H. SMITH, OGDEN

In the absence of any formal address of welcome, it is my pleasure to extend to the members of the Utah State Medical Association the hearty greetings of the Weber County Medical Society and the citizens of Ogden.

To our distinguished visitors from north, south, east and west, we extend our warmest welcome and our sincere thanks for their kindness in coming to us. We of the intermountain country are isolated. The pioneers of this region came here for the very purpose of separating themselves from the rest of the world. But their descendants and the world have changed in the almost four score years that have elapsed since that time, and I am sure that you will find us broad-minded and anxious for all helpful contact with the world at large. Our very isolation heightens our appreciation of your presence among us and increases our eagerness to hear your messages from the larger centers of medical education.

Here I desire to thank the officers and members of the association who have so kindly answered all calls for help and advice during the past year. Whatever has been accomplished has been their work, not mine.

Our former secretary, Frank Steele, who served us conscientiously in that capacity to the limit of his physical endurance, found it to his advantage to leave the state to accept a hospital appointment near Chicago. We are glad to learn that he is pleasantly occupied and is regaining his health. Upon the departure of Doctor Steele, Dr. M. M. Critchlow was elected by the council to serve until the next election. His services have been invaluable, and I am sure that you will see to it that he receives the reward, or punishment, which he merits.

It had been my intention to urge upon the Committee on Scientific Work the desirability of setting aside a part of the time of this meeting for the presen-

tation of papers by members of this association. However, the shortness of the session and the generosity of our visitors, impelled the committee to arrange the program as it stands. I strongly feel, however, that in the future, opportunity be given our members to present papers embodying personal original research, laboratory or clinical, at the annual meetings.

I am certain that those members of the association who have not held official positions will be surprised at the number and diversity of the problems which are now put up to the medical profession for advice and approval. I will mention only a few which have come to our attention during the past year:

Homes for aged physicians; birth control; legislation regarding prescriptions of alcohol; medical practice acts in the District of Columbia and various states; the expert witness; education of nurses; the cost of medical care; mental hygiene; clinics; advertising of physical therapy apparatus to the laity; periodic health examinations; the physician and the income tax; supply of physicians in rural communities.

The significance of this wide appeal to the medical profession lies in this, that the public is looking to us as men and women especially qualified by education and experience to give expert advice concerning these problems which are daily becoming more acute. Our response to these appeals will have an important bearing on the attitude of the public to our profession.

Perhaps never before has the medical profession been held in such universal respect as at this present time. Millions of dollars, from public and private sources, are being given and spent each year in the development of institutions for medical education. Criticisms of the profession appearing in the daily press and in current literature are, with few exceptions, sympathetic and constructive. We are indeed highly favored. It behooves us to put forth every effort, in our societies and associations, in the practice of our profession, and in our activities as citizens, to even more fully meet the expectations of those who in such a substantial manner have shown their good will toward us.

Before intelligent action is possible on any of these matters, we must consider them from every angle, and then discuss them in our meetings. It is obviously impossible in a scientific session of this kind to give them the consideration they deserve. Would it not be well if, throughout the year, the more important of these problems could be discussed in each local society—talked over in the family circle, as it were. In this way it would be possible to develop a force of intelligent medical opinion, which in state and national associations could be crystallized and made helpful and effective.

Three problems of special importance, out of many, demand our attention at this time:

First: The relation of private physicians to organized public health work. The public is demanding that this work be carried on. If the medical profession does not take the front rank in formulating its policies and correcting its abuses, others will, and we will eventually find ourselves privates in the rear ranks, taking orders from less intelligent but more energetic commanders.

Second: The problem of the free clinic is ever with us. Many battles are still being waged over this dark and bloody ground. The clinic cannot exist without us, and if abuses arise we are often the cause and always the victims. Now comes the pay clinic where everyone expects pay except the doctor. If talking could have solved this problem it would have been settled long ago. But it is still in our midst and still demands our attention.

The third problem to which I would direct your attention is thus characterized by Dr. Olin West, secretary of the American Medical Association: "The one great outstanding problem before the medical profession today is that of adequate, scientific medi-

cal service to all the people, rich and poor, at a cost which can be reasonably met by them in their respective stations in life." In its broader aspects the problem includes the two which I have just mentioned. More and more the medical profession is being pressed for an answer. The keenest analysis, the broadest sympathy and the most constructive thinking of the profession should be placed at the disposal of any agency which honestly seeks an equitable solution of this problem.

In thus making these problems our own the welfare of the public will not be jeopardized, since from time immemorial the first interest of the physician has been the welfare of his patient. Their solution in consonance with the ideals and ethics of the medical profession will bring forth nothing but good to humanity at large.

For these reasons I trust that in increasing measure the members of this association may direct their thoughts and bend their efforts to the application to present-day problems, of those high ideals which through the ages have ennobled our profession.

* * *

1. REPORT OF THE SECRETARY, DR. M. M. CRITCHLOW SALT LAKE CITY

The association sustained a great loss this year when the secretary, Frank B. Steele, moved from Utah to Illinois. He had practiced many years in this state, and his loss is greatly felt by his friends and by the association, which he served so well for nearly three years as secretary. The undersigned assumed his duties April 1, and asks forgiveness for his shortcomings.

The last meeting of the association was held in Salt Lake City, June 23-25, 1927. At that time the membership was 370, a gain of thirty over the previous year. At the present time there are 378 members, represented by counties as follows:

Box Elder County	8
Cache Valley.....	16
Carbon County.....	15
Salt Lake County.....	242
Uintah County.....	6
Utah County.....	42
Weber County.....	49
Total.....	378

The following members and former members have died during the year: E. S. Wright, W. H. Bash, and George V. Schramm. Obituaries were printed in CALIFORNIA AND WESTERN MEDICINE.

During the year F. B. Steele mailed a Manual of Suggestions for the Conduct of Periodic Examinations of Apparently Healthy Persons to each member of the association, as recommended by the delegate to the American Medical Association last year. It is hoped that these have been studied, and each member is urged to spread propaganda for periodic examinations.

The delegate's report, read before the House of Delegates last year, was sent to the secretary of each county society.

This session of the House of Delegates is confronted with the gigantic task of voting on a proposed new Constitution and By-Laws. Each delegate and alternate has been mailed a copy, together with the changes suggested by the council, so that due deliberation could be given to that very important matter, and it is hoped that an agreement can be reached without undue delay at this session.

President Smith appointed a Reference Committee early this year, and the chairmen of the various committees were urged to have their reports in the hands of the Reference Committee by June 1 so that much time might be saved at these meetings.

It has been a lamentable fact that in the past, recommendations made by various committees have been

lost sight of, chiefly because an entirely different personnel has been appointed on most of the committees each year. If the new Constitution and By-laws is adopted, this will not happen, as only one new member will be appointed each year, the others remaining on the committees. It is hoped that this will enable the committees to do continuous progressive work.

The Committee on Public Policy and Legislation has important work to do next year. In addition to the routine work connected with the legislature, it has been recommended that the state statute which pertains to privileged communication between physicians and patients be changed. The secretary has been informed by competent attorneys that it is possible to draft a statute so that physicians will not be at such a disadvantage in personal injury and malpractice suits. This is of paramount importance, and unceasing effort must be made to put this bit of legislation over.

It is possible for the Utah State Medical Association to wield a powerful influence in protecting the profession in the state. However, the strength of the organization depends entirely on the interest taken in it by the members. Naturally most of the work has to be done by committees, in whose hands our success or failure lies. It is to be regretted that occasionally a committee meets only to make a report before this body. It is recommended that each committee meet early, make an exhaustive study of its problems and methods of procedure, and work hard during the year to attain the purpose for which it was created, thereby promoting the science and art of medicine, the protection of public health, and the betterment of the medical profession, which are the aims of this organization as outlined in the Constitution.

* * *

2. REPORT OF THE TREASURER, DR. EDWARD D. LeCOMPTE For the period of June 23, 1927, to June 30, 1928.

RECEIPTS

Cash in National Copper Bank checking account on June 23, 1927.....	\$3,190.88
Dues of members received from component county medical societies:	
Salt Lake County.....	\$1,236.10
Box Elder County.....	40.00
Cache Valley.....	80.00
Carbon County.....	85.00
Uintah County.....	30.00
Utah County.....	220.00
Weber County.....	235.00
From the Postgraduate Committee.....	\$1,926.10
From annual banquet tickets.....	425.00
Interest on bonds—coupons.....	153.00
Balance from savings account in bonds purchased, \$4,569.17—\$4,543.33.....	120.00
Deposits of July 16, 1927.....	25.84
Deposit of July 20, 1927.....	112.00
Deposit of July 20, 1927.....	81.02
Total receipts.....	\$6,033.84

DISBURSEMENTS

Expenses incident to the thirty-third annual meeting, June 20, 21 and 22, and the 1927 postgraduate course, June 23, 24 and 25, 1927:	
Entertainment and expenses of guests, hotel bills, electrical service, drayage, etc.....	\$222.30
Annual banquet.....	381.15
Binding proceedings, 1927 meeting.....	4.50
Printing.....	76.15
Subscriptions to California and Western Medicine at \$2 per member.....	\$684.10
Office of the secretary: Salary \$250 per annum.....	742.00
Allowance for amanuensis, \$10 per month.....	\$500.00
Office of the treasurer, salary.....	120.00
Fidelity bond of treasurer, yearly premium.....	25.00
Delegate to the A. M. A.—Expense allowance.....	2.50
Printing, binding, stationery, etc.....	\$27.50
Stenographic service and telegraphing.....	150.00
Booklets on health examinations.....	28.00
Transferred to savings account.....	17.93
(Less \$32.50).....	40.00
Total disbursements.....	1,765.30
Balance, receipts over disbursements.....	4,042.33
	1,991.46
	\$6,033.84

SAVINGS ACCOUNT

Amount in National Copper Bank savings account No. 18973 on June 23, 1927.....	\$2,729.94
Transferred from checking account, September 10, 1927.....	1,765.30
Interest on savings account, October 1, 1927.....	54.52
Sale of three second Liberty loan bonds and accrued interest.....	306.36
Interest on savings account, April 1, 1928.....	95.06
Total savings account, April 4, 1928.....	\$4,951.18
Withdrawal for purchase of Utah Power and Light bonds (four).....	4,569.17
Total of savings account, June 30, 1928.....	\$ 382.01

HARLOW BROOKS FUND

I also carry for the association \$4000, Utah Power and Light Company Debenture bonds (6 per cent) series, due May 1, 1922, bearing interest of \$240 per year.

* * *

3. REPORT OF THE COUNCIL: DR. JOSEPH HUGHES
SPANISH FORK

The council respectfully submit the following report:

First: Copies of the new Constitution and By-Laws were printed and mailed to the societies throughout the state so that the physicians generally could discuss intelligently its adoption at the Ogden convention.

Second: After considerable informal discussion and investigation, the council authorized the investment of \$4000 (four thousand) in Utah Power and Light 6 per cent Debenture bonds, the balance to be left in the savings accounts at 4 per cent.

Third: The council cooperated in every way with President Smith in selecting committees and making arrangements for the Ogden convention. It was decided to hold a two-day session. We feel that it will be one of the best conventions ever held by the association.

Fourth: The council had the unpleasant experience of trying to settle difficulties and disturbances arising in the Carbon County Medical Society. After a careful consideration of the case of Doctor Ruggeri the council went to Price, Utah, on April 28, 1928, and held a meeting with the society. . . . Finally a motion was carried for the censors of the Carbon County Medical Society to go into special session and make a careful investigation of the charges made and report later for final action. If the society failed to settle their difficulties, then the council would settle them.

Fifth: Resolutions supporting the Medical Society of the District of Columbia in their effort to get a comprehensive medical practice act passed by Congress to govern the practice of medicine in District of Columbia were submitted and adopted unanimously.

Sixth: The secretary was requested to ask Doctor Giesy for a statement of his expenses as associate editor and to inform him that, in the opinion of the council, the associate editor should receive no salary.

Seventh: The council desire to commend the state officers of the association and the various committees for their untiring efforts in upholding the high standing of the medical profession and of the Utah State Medical Society. Let us all pull together for a better and greater association in Utah.

Now regarding the Carbon County trouble, I have felt that if the doctors understood the Constitution and By-Laws of our association more thoroughly there would be a better and more friendly feeling existing between the members of our various societies. I feel that we should recommend to medical colleges that a course in medical ethics should be given all students of medicine so they would have a better understanding of the ethics in the practice of medicine.

* * *

COMMITTEE ON SCIENTIFIC WORK

President Smith: I suppose the Committee on Scientific Work, inasmuch as they prepared the program that is being presented, and are responsible for it, thought that would be sufficient report. They evi-

dently think we can judge their work from the program here presented.

* * *

4. REPORT OF THE COMMITTEE ON PUBLIC POLICY
AND LEGISLATIONDR. A. C. CALLISTER, *Chairman*

Mr. President and Delegates:

There has been no session of the Utah State Legislature this year so that we have had no active work to accomplish with that body.

In response to the desire of the House of Delegates, the matter of changing the statutes of this state in the matter of admitting privileged information as testimony in personal injury cases that is not now admissible, we have taken this matter up with several prominent members of the legal profession and one Third District judge. Their attitude is one of extreme caution in regard to any change in this matter, but feel that a measure can be drafted that will change the statutes to the extent that the testimony that the House of Delegates desires in damage suits instituted for personal injuries arising out of industrial accidents, may be given.

We feel that we should urgently call to your attention that social or state medicine is making great strides in Salt Lake City due to the enterprise of a promoter aided and abetted by some members of our profession seeking personal gain from the enterprise, regardless of the fact that this enterprise will work to the unfair disadvantage of the medical profession at large.

This enterprise was promoted by an individual who promoted a similar venture in the undertaking business which is proving highly successful. He has taken several societies already organized, such as the Dutch society, and has sold them medical services at the rate of \$1.75 per month per family. Just what these services include we do not know, except that it does not include obstetrics or surgery, but it is understood that these families are to receive these latter services at one-half the current price usually charged for these services.

We feel as a committee appointed by your association to look after any public enterprise which adversely affects the welfare of the profession at large, that the action of any and all physicians who for the sake of small personal gain would sacrifice the welfare of the medical profession and through their services put money in the pocket of a promoter who has done nothing to earn it except to organize an enterprise which, as it develops, will work incalculable harm to our profession, are guilty of conduct more reprehensible than fee-splitting.

Our hospitals have taken a very determined attitude toward this latter medical crime, and we wish to urge the staffs of all hospitals to take due cognizance of any staff member or doctors having hospital privileges at their respective hospitals, who are working for this promoter and thus prostituting their profession, and deal summarily with them as though they were proven fee-splitters.

SECOND SESSION: FIVE O'CLOCK P. M., FRIDAY
JUNE 29, 1928

The president announced that reports of committees would be continued.

* * *

REPORT OF THE COMMITTEE ON PUBLIC HEALTH
W. R. CALDERWOOD, *Chairman*

A study of the public health question presents to your committee some important problems to which we desire to call your attention:

(a) We believe there is a general lack of information on the part of members of this association of the nature and extent of work being done in public health by both official and nonofficial organizations in this state.

As a result of this lack of information there is a lack of interest in and appreciation of the work being

done. We suggest that members make a more careful study of the efforts put forth on public health work by these organizations. We particularly commend to your attention the work being done by the State Board of Health. We believe their efforts are directed along safe and sane lines and that they are deserving of our united and whole-hearted support.

(b) We find an absence of any agency by means of which an efficient system of coöperation and co-ordination can be brought about among the various organizations engaged in public health work.

(c) There is no recognized system by means of which organized medicine can meet the demands of the public for better health education.

(d) The press and broadcasting stations have no authoritative source to which to go to check up on or authenticate items on health problems of interest to the public.

(e) Clinics are being organized, supposedly for the care of the indigent or semi-indigent, and the medical profession are asked to lend their aid and assistance without their being afforded sufficient safeguards against imposition.

As a result of a lack of any efficient agency to correct the above enumerated faulty conditions, much misunderstanding has arisen and there has been much adverse criticism of both official and nonofficial organizations engaged in the conservation of human health, and a lack of sufficient work of a constructive nature.

Some members of our association have responded to the call of the public for enlightenment on health problems, and have, in some instances, abused the privilege thus afforded them.

Both the press and the broadcasting stations have been imposed upon and much worthless or harmful material has been fed the innocent and unsuspecting public whom we, as the guardians of health, should protect.

As a means of correcting some of these outstanding failures to function to best advantage, and as a means of keeping this association in more intimate contact with public health activities, we recommend that the president be authorized and requested to appoint a committee of three members to be known as the Committee on Coördination on Public Health Activities, one member to serve for a term of one year; one for a term of two years, and one for a term of three years. After the first year, one member to be appointed each year to serve for a period of three years.

This committee should have power to act for and on behalf of this association in an endeavor to bring about a more united and more harmonious action on the part of all organizations engaged in public health work in this state, and to bring to the attention of this association at its annual meeting, or to any of its component societies at any time, if found advisable, the result of its investigations and efforts.

That this committee be authorized and requested to offer its services in an advisory capacity to the press, to broadcasting stations, and to both official and nonofficial organizations on any and all matters pertaining to public health; that they assist in the preparation or selection of suitable material on health topics for publication, lecture, or broadcasting; and in any way which seems to them proper, use their influence as the spokesman of this society for the betterment of public health in this state; that if necessary to function most efficiently, this committee be empowered to appoint such subcommittee or subcommittees as may seem to them necessary.

We recommend that this association lend its influence in furthering the efforts of the Utah Society for

Mental Hygiene for the securing of the following objectives:

1. The establishment of a separate state training school for the feeble-minded.
2. Special classes in the public schools for borderline defectives.
3. Mental hygiene clinics serving the larger public schools and juvenile courts of the state.
4. Psychiatric service in adult criminal courts, jails, the state prison, and the State Industrial School.
5. Improved facilities at the State Hospital. (In medicine, psychiatry, nursing, psychology, education, and social service.)
6. The use of hospital facilities rather than jails as places of detention for persons suspected of mental disorder.
7. The creation of central State Board of Institutions (or Public Welfare) with psychiatric service available to all state institutions.
8. The education of the public sentiment as to the true nature, extent, causes and means of preventing nervous and mental disorders.

And that this body instruct its Committee on Public Policy and Legislation to assist in every way consistent to secure the necessary legislation to bring about the aforesaid results.

Respectfully submitted,

W. R. CALDERWOOD, *Chairman*
H. P. KIRTLEY
JOHN Z. BROWN

Committee on Public Health, Utah State Medical Association.

* * *

UNIVERSITY OF UTAH ADVISORY COMMITTEE

H. P. KIRTLEY, *Chairman*

By authority of President E. H. Smith of the Utah State Medical Association, the chairman was permitted to enlarge this committee. Accordingly the following men met with Dean R. O. Porter of the University of Utah Medical School on Tuesday, May 29, at 10 a. m.:

William F. Beer, C. M. Benedict, M. M. Critchlow, W. D. Donohue, E. R. Dumke, G. W. Fister, F. A. Goeltz, H. C. Stranquist, Sol G. Kahn, T. H. Kelly (visitor from San Francisco), H. P. Kirtley, C. E. McDermid, E. F. Root, E. H. Smith, Clarence Snow, Fred Stauffer.

It was regretted that President Thomas of the University of Utah was unable to be present.

Dean Porter briefly discussed the requirements for admission to the Medical School, which is limited to twenty-five or twenty-six students in each class. Of these about twenty finish the second and last year. Three years of premedical work is required. The list of applicants is very large, so only the best students are chosen. Most of them are from Utah, but one or two are admitted each year from other states. Other things being equal, preference is given to sons of physicians. Accordingly scholarship is very high, and Utah graduates stand among the first in the class of the medical schools in which they are placed.

In the last five years no student placed in a medical school has failed to graduate. The requirements for admission are necessarily high, as they must meet the requirements of all the medical schools, and most of the schools admit a Utah man without question.

None of the students are placed in California schools, as that state cannot take care of its own applicants. Harvard, Pennsylvania, Northwestern, Rush, Western Reserve, Washington University and Barnes take most of the students. The tuition and various

fees amount to about \$200 per year, while the cost of maintaining the school is about \$40,000 a year.

Informal discussion followed, after which a tour of inspection was made. The students were seen at work in the physiology and pharmacology laboratories, and in the dissecting room. Dr. Shackell explained a problem on which he was working, namely, a colormetric test for pepsin function. All the equipment was in good condition, and there was enough of it for the needs of the students.

After the inspection a delicious luncheon was served by the Home Economics class, and an informal discussion was held.

A few of the committee were present five years ago and remarked on the continued and gratifying improvements made during Dean Porter's administration. A real medical school has developed from a rudimentary one. The committee takes pleasure in congratulating Doctor Porter, and feels that the Utah State Medical Association should take pride in the institution, back it, and advertise it. It recommends that the Legislative Committee of this association strive to obtain from the legislature sufficient funds for the school, so that it can operate in an efficient manner without the continual necessity of conniving to make one dollar do the work of two.

Respectfully submitted,

H. P. KIRTLEY, *Chairman*
F. A. GOELTZ
CLARENCE SNOW
T. C. GIBSON
H. C. STRANQUIST

* * *

NEW BUSINESS

The following resolution prepared by Doctors Kahn and Neher was presented:

Whereas, The greatest need for preventive medicine is shown to be in diseases of middle life, and

Whereas, Periodic yearly physical examinations is the best means of detecting these diseases in their incipient stage; be it

Resolved, That the secretary of our state association be instructed to have copies of the letter adopted by the trustees of the American Association setting forth the value of periodic physical examinations mailed to every household in the state; be it further

Resolved, That copies of said letter, setting forth the value of periodic health examinations made by their family physician, be sent to every employer listed with our State Industrial Commission, requesting the employer to post the letter on bulletin board or in some conspicuous place where it may be read by the employees; and be it further

Resolved, That a copy of this resolution be sent to our State Women's Auxiliary asking them to kindly teach and preach the value of periodic health examinations to our various clubs and civic organizations in their respective communities.

(Signed) E. M. NEHER
SOL G. KAHN

THIRD SESSION: TWELVE NOON, SATURDAY

Meeting called to order by President Smith.

Roll call of House of Delegates showed quorum present.

Abstract of minutes of meetings of previous day read by the secretary and, with one exception, approved.

President announced that the first order of business would be the election of officers; that we were to elect a president-elect; first, second, and third vice-president; councilor for the Second District; councilor for Third District; secretary and a treasurer.

The election of officers resulted as follows:

President, William D. Donohue, Salt Lake; president-elect, Howard P. Kirtley, Salt Lake; first vice-

president, E. R. Dumke, Ogden; second vice-president, J. W. Aird, Provo; third vice-president, R. A. Pearce, Brigham; secretary (three-year term), M. M. Critchlow; treasurer, Edward D. LeCompte. The Council: First District, Joseph R. Morrell; Second District, F. A. Goeltz; Third District, C. E. McDermid. Delegate to A. M. A.: Sol G. Kahn; alternate delegate, E. M. Neher. Associate editor, J. U. Giesy.

* * *

REPORT OF THE DELEGATE TO THE A. M. A.

Dr. E. M. Neher read a careful analysis of the recent Minneapolis session of the American Medical Association. Members who are interested are referred to the reports of officers and committees, and to printed minutes of the House of Delegates of the American Medical Association, which appeared in recent issues of the *Journal A. M. A.*

* * *

REPORT OF THE COMMITTEE ON REVISION OF CONSTITUTION AND BY-LAWS

Dr. F. A. Goeltz submitted the various changes which were recommended and gave the reasons for making the recommendations. The Constitution and By-Laws as finally adopted will be printed by the association, and a copy sent to each member. The stenographic report of the various motions made and actions taken are filed in the secretary's records.

Doctor Goeltz: That is all we have to offer on the Constitution and By-Laws, Mr. President.

President Smith: Doctor Beer's motion that the Constitution, with changes as recommended by the council (as presented here by the committee), be adopted. Motion carried.

President Smith: The new Constitution and By-Laws are therefore accepted as read.

Doctor Kahn: Tell me where it says anything about annual dues. How much are the annual dues to this association, and who determines that?

President Smith: The dues are now \$5; the authority is in the House of Delegates.

Doctor Kahn: I move you that the annual dues of this association be \$4 per year. Seconded.

Doctor LeCompte: I object very much to that. It comes very much as a surprise at this time. I showed in my report that we have standing accounts to meet which will exceed the \$4 yearly dues. We have to pay \$2 out of our \$5 to the CALIFORNIA AND WESTERN MEDICINE for yearly subscriptions for each member which leaves us but \$3 to run on; and if we make the dues \$4 it leaves us only \$2 to run on. There are expenses coming up continuously, and I should hate to see that motion passed.

Doctor Goeltz: There are several journals to be paid for by the state association that the state association gets no money for. We have in most of our county medical societies a provision that after a member reaches a certain age his dues are automatically suspended, and it has been the practice of our state association to continue sending the journals to these members.

Doctor Callister: May I remind the House of Delegates that the legislature meets this coming year and that we have some important legislation to put over which will mean considerable money. I wish to amend Doctor Kahn's motion, that the dues of the association remain at \$5. Motion seconded.

Further discussion by Doctors Kahn, LeCompte, Callister, and others; also by President Smith.

President Smith put the question: Those in favor of reducing the dues to \$4 say "Aye." Question. Standing vote taken with nine for, eight against. Motion carried and dues, therefore, were reduced to \$4 per annum.

* * *

REPORT OF THE REFERENCE COMMITTEE

First Vice-President R. L. Draper, presiding.

Doctor Goeltz (continuing his report from Friday afternoon's session): We recommend the adoption of

the report of the president, and wish to compliment him on his excellent address, on his assiduous work and untiring energy. He has some special recommendations which require action that we recommend for the early and earnest attention of the incoming officers.

* * *

REPORT OF THE COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Inasmuch as our new Constitution and By-Laws, Chapter 9, provides that our membership be governed by the ethical principles of the American Medical Association, and is covered by the Code, Section 4, p. 7, "Advertising," we recommend that this matter be referred to the council for early and earnest attention.

We recommend the adoption of the report of the Committee of Public Health, and recommend that this be made one of the standing committees with duties as prescribed in the committee's report.

We commend the report of the delegate to the American Medical Association for adoption.

We recommend the adoption of the report of the Committee on Necrology, and ask that Doctor Isgreen's report include therein the death of Doctor Bash.

We recommend the adoption of the following resolutions:

Resolved, That the members of the Utah State Medical Association desire at this time to extend their most grateful thanks for the generous hospitality, many courtesies and coöperation shown them by the Weber County Medical Society, the ladies of the Weber County Society, the press of Utah, the Board of Education of Ogden, the Hotel Bigelow, and the Hermitage Hotel; and be it further

Resolved, That the thanks of the association be extended to the officers, council, and members of the Scientific Committee and the Committee on Arrangements for the excellence of the program and entertainment.

We also recommend the adoption of the resolution offered at yesterday's meeting, presented by Doctors Kahn and Neher, in re yearly periodic health examinations.

Mr. President, I move the adoption of this report in its entirety. Seconded and carried unanimously.

* * *

UNFINISHED BUSINESS

Place of Meeting.—Doctor Kerby: I should like to recommend to the House of Delegates that the matter of holding our next convention in one or more of our southern Utah hotels be presented to the council by the Committee on Arrangements. I make a motion to that effect, and if they see fit, that, if possible, arrangements be made to hold the meeting at the same time the northwest group hold their convention, in case Doctor Root succeeds in bringing them here.

Doctor Donohue: The Pacific Coast Eye and Ear men meet in Salt Lake next year, and there is a tentative plan on now to arrange their meeting at the same time we hold the state association meeting. Whether that would interfere and whether those men could be persuaded to travel such a long distance from Salt Lake, I don't know. They will be either coming or going on their vacations, and their time will be very limited. I don't think it will be possible for them to spend that much time. I am not authorized to speak for those men, but it occurs to me that stating the place for the next meeting might interfere with the plans we might later desire to make.

Doctor Kerby: My motion was merely a recommendation. I do not wish to make it obligatory. It was merely a recommendation from the House of Delegates that the matter of holding our convention

at one or more of our southern Utah hotels be presented to the council.

Doctor Callister: I don't believe there is a place in southern Utah where our association could be accommodated.

Discussion by Doctors LeCompte and others regarding the facilities of Canyon hotels in Utah and the ease with which they are reached.

President Smith: All those in favor of the recommendation presented by Doctor Kerby, say "Aye." Motion carried.

President Smith then introduced the new president, William D. Donohue; and the president-elect, Howard P. Kirtley, stating that the incoming officers would be inducted into office at the general session immediately following this meeting.

Meeting adjourned, *sine die*, upon motion duly made, seconded, and carried.

* * *

COMMITTEES OF THE UTAH STATE MEDICAL ASSOCIATION FOR 1928-1929

Committee on Scientific Work

M. M. Critchlow (chairman), Salt Lake City, (three years); G. G. Richards, Salt Lake City, (two years); F. A. Goeltz, Salt Lake City (one year).

Committee on Public Policy

Three years: A. C. Callister (chairman), Salt Lake City; J. Z. Brown, Salt Lake City; H. E. Dice, Moroni.

Two years: J. C. Landenberger, Salt Lake City; J. R. Morrell, Ogden; M. M. Nielson, Salt Lake City.

One year: D. C. Budge, Logan; T. J. Welsh, C. M. Benedict, Salt Lake City.

Committee on Publication

J. U. Giesy (chairman), Salt Lake City (three years); W. R. Tyndale, Salt Lake City (two years); Helmina Jeidell, Salt Lake City, (one year).

Committee on Public Health

Ezra Rich (chairman), Ogden (three years); R. S. Allison, Salt Lake City (two years); H. G. Merrill, Provo (one year).

Committee on Medical Defense

Three years: J. P. Kerby (chairman), Salt Lake City; R. C. Pendleton, Salt Lake City; W. E. Whalen, Ogden.

Two years: E. F. Root, Salt Lake City; W. G. Schulte, Salt Lake City; E. R. Dumke, Ogden.

One year: S. C. Baldwin, M. C. Lindem, Salt Lake City; L. W. Oaks, Provo.

Committee on Medical Education and Hospitals

Three years: Clarence Snow (chairman), E. D. LeCompte, Salt Lake City; E. F. Gianotti, Helper.

Two years: W. F. Beer, L. J. Paul, Salt Lake City; R. A. Pearce, Brigham City.

One year: J. E. Dowd, Guy Van Scoyoc, Salt Lake City; Homer Rich, Vernal.

Committee on Medical Economics

T. B. Beatty (chairman), Salt Lake City, (three years); F. S. Bascom, Salt Lake City (two years); Andy Dowd, Sunnyside (one year).

Necrology Committee

J. U. Giesy (chairman), Salt Lake City (one year); H. B. Felts, Salt Lake City, (one year).

Reference Committee

F. A. Goeltz, E. M. Neher, Salt Lake City; G. M. Fister, Ogden.

Committee on Arrangements

J. J. Galligan (chairman), S. G. Kahn, E. D. LeCompte, R. T. Jellison, M. M. Nielson, W. G. Schulte, Salt Lake City.

Postgraduate Committee

B. I. Burns (chairman), S. G. Kahn, Salt Lake City; Ezra Rich, Ogden.

MISCELLANY

From time to time in this department of California and Western Medicine, appear columns grouped under the following headings: Comment on Current and Recent Articles in this Journal; News; Medical Economics; Readers' Forum; California State Board of Health; and California Board of Medical Examiners. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Meeting of Urological Association.—The annual meeting of the Western Branch of the American Urological Association will be held September 13 to September 15, the first day in San Francisco and the second and third days at Del Monte. In addition to operative and dry clinics, papers will be presented by a number of prominent eastern and western urologists. All physicians are cordially invited to attend.

Pacific Association of Railway Surgeons.—The twenty-sixth anniversary of the Pacific Association of Railway Surgeons was held at San Francisco and San Quentin, August 24-25. The program was as follows:

Address of Welcome—Hon. James Rolph, Mayor of San Francisco.

Address—Mr. E. H. Maggard, President Northwestern Pacific Railroad.

The Philosophy of Safety—Mr. L. H. Collett, Safety Supervisor Santa Fe Lines, San Bernardino.

Criminology in Railroad Affairs—Captain Duncan Matheson, Secretary-Treasurer Peace Officers Association of California.

Surgical Anesthesia—Dr. J. A. Lane, Eureka.

Covetous Neurosis—Dr. Philip King Brown, San Francisco.

Fractures of the Os Calcis—Dr. R. L. Dresel, San Francisco. Discussion by Dr. Philip Stephens, Los Angeles and Dr. W. B. Coffey, San Francisco.

The following officers were elected for the ensuing year: President, Dr. Philip Stephens, Los Angeles; first vice-president, Dr. W. H. Hood, Reno; second vice-president, Dr. Alson R. Kilgore, San Francisco; secretaries, Dr. C. A. Walker and Dr. William T. Cummins, San Francisco. The next annual meeting will be held at Reno, Nevada, the first Friday and Saturday in September, 1929.

Clinical Congress of Physical Therapy.—Announcement is made of the third clinical Congress on Physical Therapy in conjunction with the seventh annual meeting of the American College of Physical Therapy, to be held at the Hotel Stevens, Chicago, October 8-13, 1928.

Dr. Carl Sonne of the Finsen Medical Light Institute, Copenhagen, Denmark; Cav. Prof. Dr. Donato de Francesco of Venice, Italy; and Dr. A. R. Friel of London, England, will expound the results of their personal investigations in their respective specialties.

Physicians, their nonmedical assistants and technicians, and hospital executives properly vouched for, are invited to attend all sessions for which only a nominal registration fee will be charged.

Write for program, registration card and other information now, as early registration by mail is urgently solicited because the instruction classes are limited. Address: American College of Physical Therapy, Suite 820-30 North Michigan Avenue, Chicago, Illinois.

American College of Surgeons.—The American College of Surgeons will hold the eighteenth Clinical Congress in Boston, October 8-12. Headquarters will be at the Statler Hotel, and meetings will be held in the ballroom of the Copley-Plaza Hotel and Symphony Hall. An innovation this year will be the commencement of the clinics in the Boston hospitals on Monday afternoon, continuing through the mornings and afternoons of the following four days. Ether Day will be celebrated in the Dome Room of the

Massachusetts General Hospital on Friday, when a bronze bust of William T. A. Morton will be presented to the hospital. It was in this building that ether was first administered for the production of surgical anesthesia on October 16, 1846. Reduced fares on the railways of the United States and Canada have been authorized to those holding a convention certificate, so that the total fare for the round trip will be one and one-half the ordinary first-class one-way fare.

Santa Monica Health and Welfare Center of the Los Angeles Health Department Dedicated.—Wednesday afternoon and evening of August 7 witnessed the dedication of the new Health Center building located at 1529 Euclid Avenue, Santa Monica. The lot for the building was donated to the county of Los Angeles by the Santa Monica Council of Social Welfare, and the Board of Supervisors supplied the funds to erect the building at a cost of some eighty thousands of dollars.

The Health Center is the latest expression of this line of activity that has been inaugurated by the Los Angeles County Health Department, and is probably the most up to date and best equipped building of its type in the United States.

In the evening a dinner was given at the Deauville Club, and more than six hundred citizens were present. Speeches were made by Dr. Walter M. Dickie, director of the California State Board of Health; by Mayor Herman Michel; by County Supervisors R. F. McClellan and J. Bean; and Health Officer J. R. Pomeroy and other members of the medical profession.

The evening's entertainment closed with a pageant portraying the history of medicine in ancient and modern times written and directed by Jessica R. Cornett. The title of the pageant was "The Healing Vision," and had as its theme "The Progress of Medicine." In nine episodes, starting with the Egyptian, it represented methods used in curing mental and physical disorders.

The first was an Egyptian priest with his herbs and chants. The Greek priest in his priestly robes demonstrated belief in the healing power of music, and a small boy with a flute played during these rites.

A Hindoo priest in his robes carried a brass kettle of holy water and chanted. China was represented by Buddha with candles, incense and the burning of gold and paper money. An East Indian witch doctor danced, sang dolefully and scattered meal.

The blacksmith, who formerly extracted teeth and removed cinders; the barber, with his leeches and pole of bandages; the negro mammy with her rabbit's foot and incantations, chanting weird melodies; the country doctor, whip in hand, with his large bottles of bitter medicines, were followed by the modern doctor in his white garments, deftly administering to the patient.

The California State Nurses' Association, Inc., and its official publication, *The Pacific Coast Journal of Nursing* announce the establishment of enlarged and improved headquarters and the appointment of Anna C. Jammé, R.N., as director at headquarters and editor-in-chief of the journal.

This change is indicative of growth and prophetic of an increasing usefulness toward which the nurses of California have been building during the past twenty-five years.

The address after the first of September will be 609 Sutter Street at Mason, Room 501, San Francisco.

New York Academy of Medicine.—Considerable interest has been shown by the medical profession throughout the country in the first "Graduate Fort-night" of the New York Academy of Medicine, on the problem of aging and of old age, which is scheduled for October 1-14, with two sessions daily at the Academy, and clinical demonstrations and lectures at thirty teaching hospitals.

Among the speakers to be present from abroad are Sir Farquhar Buzzard, Regius Professor of Physic at Oxford, and Dr. Vittorio Putti, orthopedic physician of Bologna.

The Civil Legion.—The Civil Legion is a strictly nonpartisan organization, whose membership is made up of citizens who served the national cause as members of the draft boards, councils of defense, and other authorized civil capacities during the World War and who, for various reasons, were denied the privilege of wearing the uniform.

The surviving war governors constitute the National Advisory Board, and headquarters are at 163 West Washington Street, Chicago, Illinois. Some twenty physicians, surgeons, and dentists constitute the California State Executive Committee. The third national convention will be held October 12-13, 1928, at Huntington, West Virginia.

MEDICAL ECONOMICS

COST OF MEDICAL CARE*

Outline of Studies

PART III

Analysis of Specially Organized Facilities for Medical Care Now Serving Particular Groups of the Population

11. Organized Medical Service in Industry and in Universities.—Subjects to be included in this study are the number of industries and universities in the United States conducting medical or health services, the number of persons served, the number of persons employed, the range of the services, their cost to the industry or university and to individual workers, a comparison with similar cost in unorganized practice, the compensation paid to physicians, dentists, nurses and other personnel.

Such a study would shed much needed light on the practical possibilities of organized medical service, especially as some evaluation of quality and of results could accompany the studies of scope and cost.

The National Industrial Conference Board has made one or more studies in this field and the United States Public Health Service has collected important data. These agencies might cooperate with the committee in a further study of industrial health service which would make available additional information, particularly on the economic problems involved. In the study of university health service, it is possible that some organization representing the field of higher education might be interested in cooperating.

This study may be made through the utilization of existing reports supplemented by questionnaires.

12. Pay Clinics and Group Clinics.—One important pay clinic that was operated by the Cornell University Medical School has been made the subject of an illuminating study by the Committee on Dispensary Development. The usefulness of this study suggests the value of a study of a considerably larger number of such institutions. It would be useful to know how many there are, and to what extent they have succeeded in reducing the cost of service for persons of moderate means. It would be especially important to determine to what extent these institutions pay adequate compensation to physicians and others employed.

While there are many more "private group clinics" than "pay clinics," apparently less is known regarding their operation. It would be necessary first to define

the term "private group clinics" and then to arrive at a classification of the many different kinds now operating. It would be particularly interesting to know how many, or what proportion, have a person on the staff who gives special attention to the problem of management.

In connection with the study of pay clinics it might be desirable to consider the development of the Health Center movement which has advanced rapidly since the war, and to consider all general clinics where various types of service may be obtained, for the purpose of determining to what extent institutions are coming into existence in the United States in which complete diagnostic and therapeutic treatment is available under one administrative head and to what extent the patient pays for the cost of such service.

This study may be made through the use of questionnaires and field work.

13. Recent Developments in Services Rendered to Persons Not Indigent by State, Municipal, and County Hospitals.—This study would reveal the extent to which municipal hospitals serve people of moderate means in both in-patient and out-patient departments. It would also deal with such questions as what per cent of the total population are served by municipal hospitals, how much money is invested in them, how the money is raised and what compensation is paid to the physicians and other personnel.

There has been in recent years a significant growth in county, town and township hospitals, but there seems to be no information available as to the number of states with laws providing for their establishment and no data on the number of institutions which have been built. The Agricultural Department in Washington has made an illuminating study of this field, but it does not go far enough into the economics of the subject.

Gradually, in recent years, state hospitals have become active in serving, not only the indigent, but also patients of moderate means. This is a trend of considerable importance. How far it has developed no one knows. It is obviously important to determine the facts.

The participation of local health departments in the operation of hospitals and clinics might also be considered in connection with this study. The study of municipal health departments practice in one hundred largest cities dealt with the subject, but the schedule of questions on the operation of hospitals and clinics seems to have been unsatisfactory. Information is needed on health department hospitals and clinics not only in the one hundred largest cities, but in all cities having health departments.

This is a questionnaire study.

14. Visiting Nurse Societies.—There has been considerable criticism of the work of the visiting nurse, and it has been said that she is sometimes inclined to usurp the functions of the physician. No impartial study has been made of the nature of the services rendered, the relationship now existing between the visiting nurse and the physician, the economic status of the patient and the extent to which the services rendered has developed in various localities in the United States. Such a study might reveal possibilities in the future development of this type of community service.

This study would require field work and the questionnaire. It might be made under the supervision of the Committee on the Grading of Nurses' Schools or with the cooperation of this organization.

15. School Health Service.—While excellent studies have been made of school health supervision in the one hundred largest cities of the United States by the American Public Health Association and the United States Public Health Service, and in eighty-six smaller cities by the American Child Health Association, these do not deal with the problem of cost nor with the subject of compensation paid to those employed. In certain rural communities significant experiments have been made in extending the scope of school health work to curative measures, but to what extent

* This is the third part of Outline of Studies on "Cost of Medical Care." Parts I and II were printed in the July and August issues.

this type of work has developed no one appears to know.

Special studies might be made of school health service which would include the subjects suggested above; or a special effort might be made to have these subjects dealt with when later investigations of municipal health department practice and studies of rural health work are conducted.

16. *The Extent of Private Medical Service on a Yearly Basis.*—Reports have come into print of a few isolated instances in which single patients or groups of patients have employed individual practitioners, on a yearly basis, to supervise their health and treat sickness when necessary. A systematic study in this field might show that greater developments have taken place than have become generally known.

A writer in the *Boston Medical and Surgical Journal* has suggested that a community of 900 families might advantageously be provided with service on a yearly basis by the employment of three physicians at \$8000 per year with an expense budget of \$11,000, making a total of \$35,000. He estimated that 100 families might properly pay \$75 a year, 300 families \$50 per year, and 500 families \$25 per year. Thus the combined income from these sources would equal the total expense. There is a possibility that some time in the future a small community might be persuaded to inaugurate a system of community medical service on the general basis suggested above. A demonstration of this kind would be most illuminating.

The questionnaire method and field work might both be required in conducting this study.

17. *Existing Types of Health Insurance in the United States.*—The scope and cost of protection provided by life insurance companies, mutual benefit associations, fraternal orders and labor unions would be dealt with in this study. Special attention might be given to the subject of group health insurance.

This study might be made in connection with a study of labor legislation in the United States, which is being planned by the Social Science Research Council.

TWENTY-FIVE YEARS AGO*

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume 1, No. 11, September, 1903

From some editorial notes:

Initial Publication.—A number of papers read at Santa Barbara have appeared in other publications without the consent of the Publication Committee, or have been read before county society meetings. This action on the part of authors is, to say the least, scarcely treating the committee with the courtesy it has a right to expect. . . .

. . . Medical Societies and Public Press.—An admirable idea seems to have been born into the world by the New Castle County Medical Society of Delaware. It is no less than a plan for presenting things medical to the public in a truly ethical and professional manner. Statements which it may be desired to have placed before the public in the lay press are to be prepared and signed by a "press committee," and thus the personal advertising of the author prevented. . . .

. . . Secretaries Should Assist.—Another appeal must be made to the secretaries of county societies to send in for publication in the state journal abstract reports of the proceedings of their meetings, and personal mention of their members. . . .

. . . Santa Clara Resolutions.—The Board of Medical Examiners stands between the public and the charlatan, and is the only protection given the public by the state against the unscrupulous greed, fraud and

* This column aims to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

dishonesty of the quack and the "healer." Either an attack upon the board is justified, or it is not; if the former, then action cannot be taken too quickly; if the latter, then every reputable physician of the state should come to the support of the board and see to it that the law is carried out. . . .

. . . Final Judges of Success.—Who is the final judge of the success or failure of a given surgical procedure? This question has been suggested by a discussion at a recent meeting of a medical society. In this discussion the physicians spoke on the pathological side of the question. Admitting the improvement of the patient after the operation, they asked if it were due really to the operation that had been done, and if it were due to this, did the success come in accordance with the idea on which the operation was based or because of other conditions not taken count of by this idea? . . .

From an article on the Climate of Santa Barbara by C. M. Richter, M. D., San Francisco:

. . . It is quite an easy matter to write an article on climate, or on the climate of a certain locality by enumerating the figures of the different climatic elements, and furnishing comparisons of these figures with those of other localities. However, if one undertakes to scrutinize and to explain in detail the advantages or disadvantages which certain climatic factors in a given locality exercise on people living there, one will find this to be quite another matter. . . .

From an article on Headache as a Symptom by H. Bert Ellis, M. D., Los Angeles:

. . . I believe that the eye is a factorial element in fully 60 per cent of all headaches, and that it is the chief factor in about 80 per cent of all headaches of the frontotemporal variety. How do we recognize eye headaches? There are several factors to be taken into consideration: First, the occupation of the individual; second, the time of day or night when the headache makes its appearance; third, the location of the discomfort; and, fourth, the character of the pain. . . .

From the Minutes of the San Francisco County Medical Society:

. . . To San Francisco County Medical Society: Your committee on memoriam to the late Dr. Matthew Gardner respectfully reports as follows:

. . . Though the inception of his professional career was as an obscure and comparatively unknown rural physician, he soon rose to eminence and distinction, and even before he had attained the full bloom of middle age he became the chief surgeon of the Hospital Association of the Southern Pacific Company.

The responsibilities of such a position require tact, energy, medical ability and surgical skill, together with executive capacity. Nature seemed to have endowed Doctor Gardner with all these qualities. . . .

W. B. Coffey, Chairman Committee on Resolutions.

From article on Board of Medical Examiners:

. . . To the President and Members of the Santa Clara County Medical Society: After a careful investigation of those matters submitted to it, relative to the suit begun to oust the Board of Medical Examiners of the State of California, your committee appointed at the July meeting to inquire into the causes leading to this action, if any there be, beg leave to report its finding as follows:

From some personal items:

. . . The Lane Course of Lectures at Cooper College, August 24-28, were delivered this year by Dr. Oscar H. Allis of Philadelphia, the general subject being "Fractures and Dislocations." . . .

. . . Dr. Walter B. Coffey, president; Dr. M. Morrison and Doctor McKenzie, vice-presidents; Dr. James T. Dunn, secretary, and Dr. F. K. Ainsworth, treasurer, have been elected the officers of the newly organized Railway Surgeons Association of the Pacific Coast.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. PINKHAM, M. D.
Secretary of the Board

According to reports of Special Agent Carter, Mary Allen, colored midwife, El Centro, on July 25 pleaded guilty to a charge of violation of the Medical Practice Act and was sentenced to serve sixty days in the county jail, sentence being suspended for a period of two years.

According to the San Francisco *Chronicle* of July 31, 1928, Dr. Pearl Josephine Anderson, whose license was revoked by the Board of Medical Examiners at the July meeting, had filed in the Superior Court of San Francisco a petition for a writ of review, contending that the board was without jurisdiction. "She was cited to appear before the board to answer seven charges of unprofessional conduct and was held guilty on one charge of aiding and abetting Clodie Brown, Los Angeles, in practicing medicine without a license."

According to report of Special Agent Carter, Alfred Bach, previously mentioned in this column August and September, 1926, and July, 1927, had induced a couple of nurses to put up \$1000 each and start the Valley Sanitarium at 406 South Curtis Avenue, Alhambra. "We reminded him of his terms in jail in Long Beach, Los Angeles, and Riverside, and informed him that if he wanted free board and room and an opportunity to earn thirty cents a day for another six months on the county road gang, all he had to do was to be found in our district after the first of August. . . . The Valley Sanitarium is closed and a 'For Rent' sign on the premises."

The license of Dr. N. A. Baker of Sacramento to practice medicine was revoked by the State Board of Medical Examiners yesterday. Baker was charged with improper conduct.—*San Francisco Chronicle*, July 11, 1928.

"Three gallons of herbs were brewing on the stove and a pint of whisky was lending strength to A. Basquez, alias Jackson, when Investigator Byrne of the State Medical Board walked into 421 South Figueroa Street, yesterday to arrest the full-blooded Indian for practicing medicine without a license."

On July 12, 1928, Paul Bauer, a naturopath of Sacramento, was found guilty of practicing beyond the scope of his naturopathic license after a formal hearing before the Board of Medical Examiners, and placed on five years' probation.

After being denied an application for a new trial, Dr. Arthur O. Berg, 35-year-old chiropractor, found guilty of second degree murder after he is alleged to have performed an illegal operation upon Page Walden, 15-year-old high school girl, was today sentenced to a term of from five years to life.—*Los Angeles Express*, August 6, 1928.

Dr. Eric Breitung, fifty-one, said to be a former major in the German Army, was held here today for the Mexican Government on a warrant charging embezzlement of \$8500 while head of a sanitation committee in Mexico City (*Los Angeles Record*, August 1, 1928). There is no record of his licensure in California.

Mrs. Clodie Brown, charged with practicing medicine without a license in connection with the operation of her alleged cancer cure, was found guilty by a jury in Municipal Court yesterday within ten minutes after the jury had retired. She will be sentenced today. Mrs. Brown and Dr. Pearl Anderson, the testimony showed, operated the S. J. Bridge Cancer Cure in a downtown theater building. According to

William A. Byrne, investigator for the State Board of Medical Examiners, they applied raw acid to women's breasts in order to hold the women as patients.—*Los Angeles Illustrated Daily News*, June 15, 1918.

The license of Calvin Camp, M. D., was revoked July 11 by the Board of Medical Examiners, based upon the record of his conviction ("News Items," Cal. Bd. Med. Examiners, March, 1928).

According to the San Francisco *Examiner* of August 4, 1928, C. J. Chartier, druggist at 7501 Foothill Boulevard, Oakland, was arrested on a charge of violation of the Medical Practice Act, following the death of a four-year-old girl from diphtheria. The records show that on March 15, 1928, Chartier pleaded guilty to a previous violation of the Medical Practice Act and paid a fine of \$100 ("News Items," Cal. Bd. Med. Examiners, May, 1928).

A formal request for the ousting of Dr. James Compton of Sacramento as a member of the State Board of Chiropractic Examiners was today filed with Governor C. C. Young by Dr. Samuel Howell of Los Angeles, Compton's rival in claiming the board's secretaryship.—*San Francisco Examiner*, July 20, 1928.

According to a United Press dispatch dated Los Angeles, August 6, published in the Marysville *Appeal Democrat* of the same date "The main aim of this year's convention of the National Progressive Chiropractic Association is to add surgery and numerous therapeutics to the chiropractic profession, Dr. Charles H. Wood said in addressing the open session."

Dr. C. L. Davis, chiropractor, with offices at 6262 Van Nuys Boulevard, pleaded guilty to a charge of practicing medicine without a license before Judge H. A. Decker in local municipal court Wednesday morning and was fined \$100. An additional sentence of ninety days in the city jail was suspended by the court, and Doctor Davis was ordered to report once every six months for a period of two years.—*Van Nuys News*, July 20, 1928.

The action of the State Board of Medical Examiners in revoking the license of Frank P. Young was sustained yesterday by the Appellate Court in a decision written by Justice Houser, while the board's order was reversed in the cases of Dr. Philip Dymont and Dr. Eugene Rinaldo. The court held that the licenses should be restored in the Dymont and Rinaldo cases because they were revoked on hearsay testimony, with the legal result that the board lacked jurisdiction to make any such order. In the Young case it was held the evidence was sufficient to sustain.—*Los Angeles Times*, July 4, 1928.

Frederick W. Gehrig, D. C., drugless practitioner of Oakland, following a hearing before the Board of Medical Examiners, July 10, 1928, was found guilty of practicing beyond the scope of his drugless practitioner license and placed on probation for a period of five years.

The license of Calvin L. Gregory, M. D., Redwood City, was revoked July 11, 1928, following a hearing before the Board of Medical Examiners based upon charges of an alleged illegal operation.

Dr. J. A. Hadley, whose writ of certiorari was denied by the Supreme Court in June, and who has been practicing since that time, according to a statement made by District Attorney Metzler, was today notified by Inspector Davidson, representative of the State Medical Board, to cease practice at once or summary action would be taken by the board. Doctor Hadley's license to practice medicine in the state of California was revoked by the State Medical Board after a hearing on the charges in connection with the Louise Baxendale case, on account of whose death

Doctor Hadley was tried for murder and acquitted.—*Eureka Times*, July 19, 1928.

Dr. F. W. Harms, a physician of Galt, is charged with violating the State Poison Act by the sale of narcotics in a complaint issued by District Attorney Neil R. McAllister today at the request of State Narcotic Agent George H. Ferguson. The narcotic agent alleges that the Galt physician last night made a sale of narcotics.—*Sacramento Bee*, July 5, 1928.

The Initiative Measure permitting drugless practitioners in public hospitals failed to qualify for the November election ballot, as the time expired today because of lack of the necessary number of signatures. Only 3620 signatures appeared on the petition, while 91,529 were needed, according to Charles J. Haggerty, election statistician of the Secretary of State's office.—*Fresno Bee*, August 8, 1928.

"Dr." Howard A. Kelley, Pasadena dishwasher, who was tripped up by investigators of the State Medical Board when he forgot what state Mayo Brothers' famous hospital was located in, was given a stiff dose of medicine in the form of ninety days when he pleaded guilty before Municipal Judge F. F. Gualano today to a charge of practicing medicine without a license. Evidence disclosed that Kelley told patients who called at his office, 272 North Marengo Street, Pasadena, that he learned medicine with the Mayo Brothers at Rochester, New York. When medical investigators called upon him to determine when the Mayos moved their hospital from Minnesota, it was stated that they discovered that Mr. Kelley's knowledge of medicine was gleaned from books while dishwashing in a Pasadena restaurant.—*Los Angeles Express*, August 4, 1928. (Previous mention, "News Items," Cal. Bd. Med. Examiners, July, 1928.)

Following a formal hearing before the Board of Medical Examiners on July 11, 1928, the license of John G. Lenz, M. D., was revoked.

According to report of our Investigation Department, Molly G. Neal, colored midwife, El Centro, California, pleaded guilty July 25 to a charge of violation of the Medical Practice Act and was sentenced to serve sixty days in the county jail, said sentence being suspended for two years.

Dr. G. Carl H. McPheeters of Fresno, formerly a practicing physician in Riverside, has been restored to medical practice by Superior Judge Charles R. Barnard in the Superior Court of Fresno County. The court set aside the action of the State Board of Medical Examiners, which revoked McPheeters' license June 28, 1927, when it found that the doctor was guilty of revealing professional secrets in connection with the death here two years ago of his former office girl. Doctor McPheeters appealed to the courts from the ruling of the Board of Medical Examiners on the ground that the board did not have sufficient evidence at all to support its rulings in his case and that the law which gives the Board of Medical Examiners its executive authority is unconstitutional.—*Riverside Press*, July 16, 1928.

Charged with violating the State Pharmacy Laws relating to narcotics, Dr. Carroll S. Middleton and wife of Venice, the latter mother of six children and accused of being a drug addict, yesterday were arrested at their home here at 15 Thornton Avenue. Doctor Middleton, who is a registered physician of the state but who has retired from practice, is charged with prescribing narcotics for his wife, an alleged habitual user of drugs, and his wife is held for violation of the State Pharmacy Laws on the ground of possession of narcotics.—*Venice Vanguard*, August 2, 1928.

The Canadian Government yesterday upheld the judgment of the Immigration Court in Calgary handed down on June 8, and "Dr." Orlando Edgar Miller, self-styled psychologist, will be turned over to the United States officers and brought to San Francisco to stand trial on a charge of using the mails to defraud. The deportation was ordered on the counts: That he was an undesirable alien, being under indictment on a criminal charge in his own country, and that he entered Canada by fraud, claiming to be a tourist, and then undertaking a lecture tour for profit.—*San Francisco Chronicle*, June 17, 1928. (Previous entries, "News Items," Cal. Bd. Med. Examiners, June, October, November, 1926; March, 1927; March, 1928.)

Proceedings to remove Dr. Edwin Mills, alias Dr. Lester Parker, accused of impersonating a government officer, to San Francisco for hearing will be started today before Acting United States Commissioner Turney. Doctor Mills has long been sought by government agents for posing as a Navy surgeon and thus inducing many persons to cash asserted fake checks. Indictments have been returned against him at San Francisco and San Antonio, Texas; and Seattle authorities who caused his arrest also want him on charges of passing bad checks in that city while appearing as a Navy officer.—*Los Angeles Times*, July 30, 1928. ("News Items," Cal. Bd. Med. Examiners, July, 1928.)

Fred V. Mohn, M. D., following a hearing before the Board of Medical Examiners on a charge of aiding and abetting an unlicensed practitioner, was found guilty July 12, 1928, and was placed on probation for a period of five years.

The attention of the Board of Medical Examiners was recently called to an individual by the name of Hans Oftedal, reported as recently practicing in Montague, California, without the formality of obtaining a license under the laws of this state. He is reported to claim graduation from the University of Oregon Medical School and licenses to practice medicine and surgery in Minnesota, Oregon, and California; however, none of these statements are verified by authorities. He is reported to be about fifty-eight years of age, weight about 210, heavy gray hair, usually worn long on the back of the neck, gray or blue eyes, and we are interested in his present whereabouts.

Dr. Allen Peek, well-known local physician, is to appear before Judge Malvern Dimmick Monday in a citation for contempt of court, issued after Doctor Peek is alleged to have failed to appear before the State Labor Commission representative in Santa Barbara on a wage charge filed by a woman there.—*Ventura Star*, June 16, 1928. (Previous entry, "News Items," Cal. Bd. Med. Examiners, May, 1928.)

Dr. Percy Purviance, head of the Berkeley Chiropractic College, 2168 Shattuck Avenue, was found not guilty today by Judge Oliver Youngs, Jr., on a charge brought against him by the State Board of Chiropractic Examiners, of using the initials "D. C." (Chiropractic Doctor). . . . The hearing today was one of a series of legal complications involving the Berkeley Chiropractic College.—*Oakland Tribune*, June 21, 1928.

Holding there was insufficient evidence to warrant the action of the State Board of Medical Examiners in finding Dr. Thomas J. Randall of this city guilty of unethical advertising, Superior Judge Walter S. Gates today annulled the board's action in placing the physician on five years' probation and restricting the wording of his advertisement.—*Los Angeles Herald*, July 31, 1928.

